

IV.25 CUMULATIVE IMPACTS ANALYSIS

IV.25.1 Introduction and Methodology

The National Environmental Policy Act (NEPA) requires preparation of a cumulative effects analysis. This chapter analyzes how the Desert Renewable Energy Conservation Plan (DRECP) and ecological and cultural conservation and recreation designations may affect the environmental conditions within and beyond the DRECP area. This Environmental Impact Statement (EIS) also analyzes how DRECP-related future transmission facilities in the vicinity of the DRECP area and outside the DRECP area may be affected by the DRECP in combination with other activities likely to take place over the next 25 years in those areas.

IV.25.1.1 Legal Requirements

NEPA identifies three types of potential impacts: direct, indirect, and cumulative. A cumulative impact is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or nonfederal) or person undertakes such other actions (40 Code of Federal Regulations [CFR] 1508.7). Further, “[c]umulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7). The Council on Environmental Quality (CEQ) recommends that agencies “look for present effects of past actions that are, in the judgment of the agency, relevant and useful because they have a significant cause-and-effect relationship with the direct and indirect effects of the proposal for agency action and its alternatives” (36 CFR 220.4[f]).

Methodology

Under NEPA, the approach for analyzing cumulative effects involves establishing a geographic scope and time frame for the each cumulative effects issue. “The geographic scope is generally based on the natural boundaries of the resource affected, rather than jurisdictional boundaries” and may be different for each cumulative effect issue. “Time frames, like geographic scope, can vary by resource” (H-1790-1 BLM Section 6.8.3 et seq.). Once the geographic and temporal scopes have been established, “[t]he cumulative effects analysis considers past, present, and reasonably foreseeable future actions that would affect the resource of concern within the geographic scope and the time frame of the analysis.” The analysis must include other federal actions, and nonfederal (including private) actions (40 CFR 1508.7).

Under NEPA, past actions must be considered to provide context for the cumulative effects analysis (40 CFR 1508.7). Past actions can usually be described by their aggregate effect without listing or analyzing the effects of individual past actions (CEQ,

Guidance on the Consideration of Past Actions in Cumulative Effects Analysis, June 24, 2005). The past actions in the DRECP area contributed to the existing baseline and are described in Volume III, Affected Environment. In some circumstances, past actions must be described in detail when they bear some relation to the proposed action (H-1790-1, Section 6.8.3.4). Where necessary, those actions are described throughout this section. For example, Table IV.25-1 includes past and present energy projects (i.e., existing projects and projects currently approved for construction).

This cumulative analysis uses a list of renewable energy and other large projects that could contribute to cumulative impacts, and projections from approved plans were used to identify impacts from other types of projects and activities in the area, as discussed below. In this chapter, the term “cumulative projects” collectively refers to projects that appear in the cumulative project list and those captured in the planning projections from approved plans.

Renewable Energy Projects. For renewable projects in the DRECP area, Tables IV.25-1 through IV.25-3 present a list of past, present, and foreseeable future projects included in the cumulative impact analysis. A reasonably foreseeable renewable project is one that has a signed Power Purchase Agreement (PPA), an approved BLM right-of-way (ROW), other project approvals, or for which environmental review has begun by the lead agency. Projects proposed on BLM-managed public land that have not yet started the environmental review process, but for which BLM has received a plan of development (POD) were also considered reasonable foreseeable, and are included on Table IV.25-3. The DRECP analysis recognizes that some of these renewable projects may not be developed. In addition, most of the projects listed in Tables IV.25-1 through IV.25-3 have been, are being, or would be required to undergo their own independent environmental review under NEPA, the California Environmental Quality Act (CEQA), or both, as applicable.

Renewable energy projects on BLM lands approved after BLM adopts a DRECP Record of Decision (ROD) would be subject to the provisions of the DRECP (unless they fall under an existing application as described in Volume II, Section II.3.3.3.5, Existing Applications on BLM-Administered Land). Because these projects are subject to DRECP decisions, the impacts from their development are included in the direct and indirect impacts analysis for the DRECP itself, and are not duplicated in the cumulative impacts. Renewable projects identified in Table IV.25-2 may fall under an existing application and are therefore considered cumulative projects rather than DRECP projects.

Phase II of the DRECP. The cumulative analysis also considers in a general manner potential renewable energy that would be developed under Phase II of the DRECP. The exact amount and location of renewable energy developed under Phase II is unknown, but the effects of these projects would be similar to those described in Section IV.25.3

for past, present, and foreseeable renewable energy projects. Phase II renewable energy projects would be dictated in part by County renewable energy plans. A brief summary of the county's renewable energy planning is included below in Section IV.25.2.2.

Other Projects. Table IV.25-4 provides a list of other large projects. A summary of actions and trends contained in adopted general plans or other federal or state planning documents is also included for both the DRECP area and outside the DRECP area where the transmission required to take the renewable energy to the load would be located.

If BLM adopts a DRECP ROD, many projects on BLM lands would be subject to the Land Use Plan Amendment (LUPA) component of the DRECP, whether or not those projects involved renewable energy development. Because these projects are subject to the DRECP, their impacts are included in direct and indirect impacts of the DRECP itself. Projects on private or public land (other than BLM lands) that are not renewable energy projects would not be covered by the DRECP, so these projects are included as appropriate in this analysis as cumulative projects.

For both renewable energy and other projects, where the BLM has approved a land use plan amendment permitting development, but construction had not started as of October 2013, the effects of the land use plan amendment (i.e., planning decisions designating lands for certain uses) are considered a past action and identified as such in Volume III. However, construction and operation impacts of those projects have not yet occurred, but are considered reasonably foreseeable.

IV.25.1.2 Projects Included in the Cumulative List

Developers have proposed a large number of projects on BLM-administered, state, and private land in the DRECP area, including renewable energy, residential, commercial, industrial, and other. Because of the size of the DRECP, the county projections summary accounts for smaller projects and cumulative development outside the DRECP. The county projections also provide an overview of local renewable energy planning.

While the cumulative list includes many renewable projects and the cumulative analysis conservatively assumes all projects would be built, they are competing for utility Power Purchase Agreements, which will allow utilities to meet state-required Renewable Portfolio Standards. Not all of the projects listed in Table IV.25-2 will complete the environmental review process and be approved, and not all approved projects will be funded and constructed for one or more of the following reasons:

- Not all developers will develop the detailed information necessary to meet BLM, state, and federal standards or have the time or funds to complete the plan of development or comply with the environmental review requirements.

- As part of approval by the appropriate lead agency under NEPA and/or CEQA (e.g., BLM, California Energy Commission [CEC], local jurisdiction, or USFWS if Endangered Species Act-listed species would be affected), applicants must comply with all existing laws, regulations, or the prescriptions required by the regulatory authorities incorporated into the lead agency's license, permit, ESA Section 7 consultation, or ROW grant. The large size of these projects may result in permitting challenges related to endangered species, mitigation measures or requirements, and other issues.
- After project approval, construction financing must be obtained (if it has not been obtained earlier in the process). The availability of financing will depend on the status of competing projects, the laws and regulations related to renewable project investment, and the time required for obtaining permits for individual projects.
- The inability to secure—or a delay in securing—a Power Purchase Agreement may result in a delay in financing.

IV.25.2 Applicable Cumulative Projects and Projections

IV.25.2.1 Cumulative Projects

Tables IV.25-1 and IV.25-2 present the existing and reasonably foreseeable renewable projects as of July 2015, that could contribute to the cumulative effects in the DRECP area boundary. Projects are listed by DRECP ecoregion subareas.

**Table IV.25-1
Renewable Energy Projects – Operational (OP),
Under Construction (UC), and Approved (A) as of July 2015**

Project Name	MW	Technology	Acreage	Status
<i>Cadiz Valley and Chocolate Mountains</i>				
Blythe Solar Power Project	375 (485)	Solar PV	7,025(4,138)	A
Desert Harvest Solar Farm	150	Solar PV	1,208	A
Desert Sunlight Solar Farm	550	Solar PV	4,144	OP
First Solar Electric Blythe 1	21	Solar PV	200	OP
Genesis NextEra Phase 1 and 2	250	Solar Trough	1,950	OP
McCoy Solar Energy Project	750	Solar PV	4,395	UC
Solar Reserve Rice Solar	150	SPT	1,387	On hold
<i>Imperial Borrego Valley</i>				
Black Rock Geothermal 1,2, and 3	159	Geothermal	160	A
Calexico Solar Farm 1 and 2	400	Solar PV	2,800	A
Campo Verde Solar	139	Solar PV	1,990	OP

Table IV.25-1
Renewable Energy Projects – Operational (OP),
Under Construction (UC), and Approved (A) as of July 2015

Project Name	MW	Technology	Acreage	Status
Centinela Solar	275	Solar PV	2,067	OP
East Brawley Geothermal Project	49.9	Geothermal	3,030	A
Hudson Ranch I	49.9	Geothermal	305	OP
Hudson Ranch II	49	Geothermal	245	A
Imperial Solar Energy Center West (C Solar West)	250	Solar PV	1,100	UC
Imperial Solar Energy Center South (C Solar South)	130	Solar PV	946	OP
Midway Solar I and II/Calipatria Solar Farm I	275	Solar PV	1,731	OP/UC
Mount Signal Solar Farm	200	Solar PV	1,400	OP
NRG Solar Borrego I	26	Solar PV	308	OP
Ocotillo Express	315	Wind	12,436	OP
Ocotillo Sol	15	Solar PV	115	A
ORNI 18	50	Geothermal	240	OP
Solar Gen 2 (Arkansas, Alhambra, Sonora)	150	Solar PV	1,500	UC
Sol Orchard 1-4, 6-10, 12-17	8.5	Solar PV	Unknown	OP
Sol Orchard Solar Farm Project (El Centro)	20	Solar PV	140	OP
<i>Kingston and Funeral Mountains</i>				
Ivanpah	390	SPT	3471	OP
Stateline Solar Farm	300	Solar PV	1,685	UC
<i>Mojave and Silurian Valley</i>				
<i>Owens River Valley</i>				
Coso Geothermal	302	Geothermal	Unknown	O
<i>Panamint Death Valley</i>				
<i>Pinto Lucerne Valley and Eastern Slopes</i>				
Agincourt Solar - Lucerne Valley	10	Solar PV	80	A
Marathon Solar - Lucerne Valley	20	Solar PV	152	A
SEPV2 – Twentynine Palms Solar	2	Solar PV	20	OP
SEPV8 LLC	12	Solar PV	100	OP
SEPV9 LLC	9	Solar PV	80	OP
Solutions for Utilities Inc. Phase 1 and 2 (Now Soitec)	3	Solar PV	Unknown	A
Sunlight Partners Apple Valley (Nunn)	1	Solar PV	10	OP
Sunlight Partners El Mirage	2.5	Solar PV	26	OP

Table IV.25-1
Renewable Energy Projects – Operational (OP),
Under Construction (UC), and Approved (A) as of July 2015

Project Name	MW	Technology	Acreage	Status
<i>Piute Valley and Sacramento Mountains</i>				
<i>Providence and Bullion Mountains</i>				
<i>West Mojave and Eastern Slopes</i>				
Abengoa Mojave Solar	250	Solar Trough	1,765	OP
Absolutely Solar (CUP 11-02)	3.4	Solar PV	20	OP
Adelanto Solar	10	Solar PV	42	OP
Alpine Solar Project	66	Solar PV	835	OP
Alta East	300 (153)	Wind	2,592 (1,999)	OP
Alta Operational (I–VI and VIII)	1020	Wind	13,785	OP
Barren Ridge I Solar Project	74	Solar PV	588	UC
Beacon Solar Energy Project	250	Solar PV	2,320	UC
Borrego Solar Farm (at Edwards Air Force Base)	3.4	Solar PV	n/a	OP
Catalina Renewable Energy Project aka Solar	130	Solar PV	1,223	OP
Columbia I	20	Solar PV	165	A
Columbia III	10	Solar PV	68	A
Coram Ridge Wind Project	102	Wind	Unknown	OP
Coran Inc.	8	Wind	130	OP
First Solar (Desert Quartzite)	600	7,236	Solar PV	A
Great Lakes	5	Solar PV	40	A
Hesperia 14 LLC	--	Solar PV	12.5	A
Irell Foundation Zone Change Case 42, Zone Variance Case 16, map 197 (Wind Coram Inc.)	3	Wind	60	A
Jawbone Wind Energy Project	39	Wind	640	UC
Kramer Junction Solar Energy Center (SEGS 1-9)	354	Solar PV	1,600	OP
Lightsource Renewables LLC	40	Solar PV	Unknown	A
Lower West Wind Energy Project	14	Wind	185	A
Morgan Hills	230	Wind	3,604	A
Mountain View IV	49	Wind	1,240	OP
NextLight Antelope Valley (AV Solar Ranch) PV1	115	Solar PV	1,050	OP
NextLight Antelope Valley (AV Solar Ranch) PV2	115	Solar PV	1,050	OP
North Sky River Energy	163	Wind	12,781	UC
Pacific Wind LLC	140	Wind	8,300	OP
Pine Tree Solar	8.5	Solar PV	34	OP
Pine Tree Wind Farm	120	Wind	8,000	OP

Table IV.25-1
Renewable Energy Projects – Operational (OP),
Under Construction (UC), and Approved (A) as of July 2015

Project Name	MW	Technology	Acreage	Status
Pinyon Pines I (168 MW) and II (132 MW) (formerly known as Alta Wind VII and IX)	300	Wind	acreage included in Alta Operational	OP
RE Rio Grande	5	Solar PV	47	OP
Rosamond I	20	Solar PV	320	A
Rosamond II	20	Solar PV	160	A
Rosamond Solar Project	120	Solar PV	960	A
Silverado Power (CUP 11-03)	10	Solar PV	67	A
Silverado Power (CUP 11-05)	20	Solar PV	80	A
SunPeak Solar	23	Solar PV	123	OP
Tehachapi Photovoltaic Project	40	Solar PV	337	A
TA High Desert - Solar PV	20	Solar PV	216	OP
Victor Phelan Solar 1	17.5	Solar PV	160	A
Windstar (Aero Energy)	120	Wind	1,007	OP

Project has been approved but is undergoing right-of-way amendment for a technology change. Blythe was originally approved at 1,000 megawatts (MW) but NextEra revised their Plan of Development to the BLM to 485 MW.

Data Source: BLM websites: <http://www.blm.gov/ca/st/en/fo/palmsprings.html>, <http://www.blm.gov/ca/st/en/fo/elcentro.html>, <http://www.blm.gov/ca/st/en/fo/needles.html>, <http://www.blm.gov/ca/st/en/fo/barstow.html>, <http://www.blm.gov/ca/st/en/fo/ridgecrest.html>; Kern County website: <http://pcd.kerndsa.com/planning/renewable-energy>, Inyo County website: <http://www.inyoplanning.org/projects.htm>, San Bernardino website: <http://cms.sbcounty.gov/lus/Planning/RenewableEnergy.aspx>, Riverside County: <http://planning.rctlma.org>, and Imperial website: <http://www.icpds.com/?pid=988>; CEC list of renewable projects.

Table IV.25-2
Renewable Energy Projects – Under Environmental Review (UER) as of July 2015

Project Name	MW	Acres	Technology	Status
<i>Cadiz Valley and Chocolate Mountains</i>				
Palen Solar Power Project	500	5,200	SPT	UER/Approved/FEIS†
Palo Verde Mesa	485	3,400	Solar PV	NOP 8/9/12
Desert Quartzite Solar	300	4,845	Solar PV	NOI March 2015
<i>Imperial Borrego Valley</i>				
Imperial Valley Solar Company 2	30	159	Solar PV	UER/FEIR 05/2013
Iris Cluster Solar Farm	360	1,400	Solar PV	UER/Approved/FEIR
Tenaska Silverleaf Solar (Imperial Valley)	160	1,100	Solar PV	NOP 3/14/2012
Wistaria Ranch Solar	250	3,394	Solar PV	FEIR December 2014
Seville Solar Farm Complex	25	2,440	Solar PV	FEIR October 2014

Table IV.25-2
Renewable Energy Projects – Under Environmental Review (UER) as of July 2015

Project Name	MW	Acres	Technology	Status
<i>Kingston and Funeral Mountains</i>				
Hidden Hills SEGS	500	3,277	SPT	Suspended
<i>Mojave and Silurian Valley</i>				
Bechtel Soda Mountain Solar	350	4,397	Solar PV	FEIS 06/05/2015
<i>Owens River Valley</i>				
Southern Owens Valley Solar Ranch	200	3,100	Solar PV	EIR
<i>Panamint Death Valley</i>				
<i>Pinto Lucerne Valley and Eastern Slopes</i>				
Cal SP VII LLC	3	30	Solar PV	UER/MND
Cascade Solar	18.5	150	Solar PV	UER/MND
Deep Creek Solar	2	26	Solar PV	UER/MND 11/2012
<i>Piute Valley and Sacramento Mountains</i>				
<i>Providence and Bullion Mountains</i>				
<i>West Mojave and Eastern Slopes</i>				
Addison Energy Wind Project	--	--	Wind	DEIS November 2013
Avalon Wind Energy Project	300	7,369	Wind	UER/FEIR
Deep Creek Solar - Apple Valley	2	26	Solar PV	DMND 10/2012
Fremont Valley Preservation Water Bank and Solar Project	1008	4,806	Solar PV	DEIR September 2013
FRV Orion (Kern)	20	165	Solar PV	DEIR December 2012
FRV Valley Solar Project	115	984	Solar PV	UER/FEIR
Kingbird Solar (Kern)	40	324	Solar PV	Revised DEIR July 2014
North Edwards Solar	20	--	Solar PV	UER/MND
Pioneer Green Energy (Kern)	125	--	--	FEIR
Silverado Power Six Projects	172	750	Solar PV	NOP 6/2012
Summer and Springtime Solar	60	293	Solar PV	UER/DMND
Topco Solar	7.5	20	Solar PV	UER/DMND
Tylerhorse	60	1520	Wind	DEIS 4/18/2014
Victor Dry Farm Ranch LLC	10	40	Solar PV	UER/MND
Yakima Solar Project	40	429	Solar PV	Draft EIR 9/3/2013

† FEIS/DEIS – Final/Draft Environmental Impact Statement; FEIR/DEIR – Final/Draft Environmental Impact Report; MND – Mitigated Negative Declaration; NOP – Notice of Preparation; NOI – Notice of Intent

The Palen developer has requested a technology change from solar thermal trough to a solar thermal tower. The California Energy Commission approved the original project and is reviewing the requested project amendment. The BLM published a Final EIS on the original technology, and must supplement its analysis to address the new technology.

The Hidden Hills Application for Certification was suspended until further notice; the Applicant plans to continue to evaluate and collect information for the Project [Docket 11-AFC-02, TN# 70195, April 03, 2013]

Projects are North Lancaster Ranch, Western Antelope Blue Sky Ranch, American Solar Greenworks, Antelope Solar Greenworks, Silver Sun Greenworks, and Lancaster WAD.

Data Source: BLM websites: <http://www.blm.gov/ca/st/en/fo/palmsprings.html>, <http://www.blm.gov/ca/st/en/fo/elcentro.html>, <http://www.blm.gov/ca/st/en/fo/needles.html>, <http://www.blm.gov/ca/st/en/fo/barstow.html>, <http://www.blm.gov/ca/st/en/fo/ridgecrest.html>; Kern County website: <http://pcd.kerndsa.com/planning/renewable-energy>, Inyo County website: <http://www.inyoplanning.org/projects.htm>, San Bernardino website: <http://cms.sbcounty.gov/lus/Planning/RenewableEnergy.aspx>, Riverside County: <http://planning.rctlma.org>, and Imperial website: <http://www.icpds.com/?pid=988>; Energy Commission list of renewable projects.

Table IV.25-3 presents the BLM wind and solar development with a Plan of Development that have not started the NEPA review process but could contribute to cumulative effects in the DRECP area.

Table IV.25-3
BLM Wind Development and First-in-Line Solar Applications

Projects	BLM Serial Number	MW	Acres	Technology	Status
Solar Reserve (Mule Mountain III)	CACA 50390	250	8,160	Solar Power Tower	Pre-NOI
Pacific Wind (Iberdrola) (Silurian Valley Wind)	CACA 51581	160	6,720	Wind	Pre-NOI
BrightSource Sonoran West	CACA 51967	540	12,269	Solar Power Tower	Pre-NOI (within Solar Energy Zone)
Total		2,571	88,257		

More than one solar right-of-way application may be filed with the BLM for use of a particular public land site. These applications have priority based on date of application submittal. First-in-line projects are the projects that have the first application for use of a site and therefore priority over other applications that may exist on that site.

Source: BLM California Wind Applications (updated January 2014) and BLM California Solar Applications (updated January 2014): <http://www.blm.gov/ca/st/en/prog/energy/pendingapps.html>.

Table IV.25-4 presents the existing and reasonably foreseeable projects that could contribute to the cumulative effects in the DRECP area.

Table IV.25-4
Other Large Projects Within the DRECP Boundary

Projects	Acres	Status
<i>Cadiz Valley and Chocolate Mountains</i>		
Devers–Palo Verde #2 500 kilovolts (kV) Transmission Line Project	500 kV transmission line from Colorado River Substation to the Devers Substation resulting in 720 acres of permanent ground disturbance.	UC

**Table IV.25-4
Other Large Projects Within the DRECP Boundary**

Projects	Acres	Status
Eagle Mountain Pumped Storage Facility	The project is a pumped storage hydroelectric project that will provide 1,300 MW of generating capacity. Project reservoirs would be formed by filling existing mining pits at the old Kaiser Mine near Desert Center. Project located on 2,220 acres.	FERC License issued June 2014. Final EIR released July 2013. SWRCB approved project in July 2013
<i>Imperial Borrego Valley</i>		
Canenergy Rockwood Project	Cellulosic biofuel ethanol/chemical manufacturing facility with 12,500 acres of energy cane crops to be grown in the Imperial Valley.	NOP
Herber Dunes State Vehicular Recreation Area General Plan	Directs the long-range development and management of a park by providing broad policy and program guidance. The goals of the General Plan aim to provide the framework to create an enjoyable recreational experience; to enhance OHV recreation opportunities; and to protect the State Vehicle Recreation Area's (SVRA) resources including plants, wildlife, and cultural resources.	Adopted General Plan December 2011
IID Path 42 Upgrade Project	Upgrading existing 35 miles of Path 42 230 kV transmission lines between IID's Coachella Valley Substation and Southern California Edison's Devers Substation from single to double conductor per phase.	Approved January 2014.
Keystone Planning Decision/Rancho Los Lagos	Approved a plan revision to 1,076 acres adjacent to the southern corporate limit of the city of Brawley, Imperial County. Proposed use of the area is for a mix of land uses including residential, commercial, business park, public infrastructure, public schools, and recreation.	Approved June 2012
Oat Pit Aggregate Surface Mine	850,000 tons of sand and gravel from Oat Pit Mine. Located on 280 acres.	ROD issued August 2011
Ocotillo Wells State Vehicular Recreation Area General Plan	Broad-based policy document that establishes a long-range vision and goals and provides direction on future types of improvements, services, and programs.	Developing alternatives – pre NOP and Scoping
Pyramid Construction at Padre-Madre	Production of mineral materials in eastern Imperial County, Pyramid was awarded 500,000 tons of waste rock from former Padre Madre gold mine site. Located on 40 acres.	ROD issued November 2011

**Table IV.25-4
Other Large Projects Within the DRECP Boundary**

Projects	Acres	Status
Salton Sea Landfill Expansion Project/CUP #10-0002	An expansion of the permitted disposal area from 7.8 acres to 284 acres; Increase the maximum daily tonnage from 50 tons per day to 6,000 tons per day, estimated to be phased in over a period of 10 years.	Approved November 2013
Salton Sea Species Conservation Habitat Project	State project at the Salton Sea to implement conservation measures necessary to protect the fish and wildlife species dependent upon the Sea. Up to 3,770 acres of shallow water habitat ponds may be constructed depending upon funding availability.	FEIR Certified, groundbreaking expected mid 2014.
Sonny Bono Salton Sea Comprehensive Conservation Planning	The Sonny Bono Salton Sea National Wildlife Refuge Complex consists of the Sonny Bono Salton Sea National Wildlife Refuge (NWR) and the Coachella Valley NWR both located within the 8,000-square-mile Salton Basin of the Colorado Desert. The USFWS has prepared a Comprehensive Conservation Plan to guide the management of the refuges over 15 years and provide direction on conserving wildlife and their habitats. The CCP identifies wildlife-dependent recreational opportunities and includes a draft Integrated Pest Management Plan for the Complex and a draft Predator Management Plan and a hunt plan for the Sonny Bono Salton Sea NWR.	Draft Comprehensive Conservation Planning and Environmental Assessment (EA) published July 2013
Sugarcane and Sweet Sorghum-to-Ethanol, Electricity and Bio-Methane Facility	Located in the Mesquite Lake Specific Plan Area in Imperial County and includes both the electricity and bio-methane facility and 41,000 acres of sugarcane and 33,000 acres of sweet sorghum grown within Imperial County.	Approved Sept 2013
Sunrise Powerlink	500 kV/230 kV transmission line resulting in 255 acres of permanent disturbance from Imperial County to San Diego County.	OP
BLM Oil and Gas Development RMP	Evaluation and amendment, if necessary, of the current management decisions for oil and gas resources within the WRFO Planning Area.	Draft EIR December 2012
North Gila – Imperial Valley #2 Project	Unknown	SF-299 form submitted to BLM

Table IV.25-4
Other Large Projects Within the DRECP Boundary

Projects	Acres	Status
<i>Kingston and Funeral Mountains</i>		
Calnev Pipeline Expansion Project	Construction, operation, and maintenance of 233 miles of new 16-inch diameter pipeline from near Las Vegas, Nevada, to Baker, California, paralleling the existing system for most of the route. Project would result in 2,841 acres of ground disturbance.	Draft EIS March 2012
Desert Xpress Enterprises High Speed Rail	High-speed passenger train in San Bernardino County, California, and Clark County, Nevada. Project would result in 972 acres of permanent ground disturbance. Also located in Mojave and Silurian Valley and Pinto Lucerne Valley and Eastern Slopes.	EIS complete, ROW issued in 2011
Eldorado-Ivanpah Transmission Project	Transmission upgrade project between Eldorado and Ivanpah, projects would result in 420 acres of permanent ground disturbance. Project is principally within the I-15 highway corridor.	UC
I-15 Joint Port of Entry	State of California will construct and operate Joint Port of Entry on I-15 in the Ivanpah Valley that will include an Agricultural Inspection Facility and Commercial Vehicle Enforcement Facility. Port of Entry will be located on 133 acres.	UC
Amargosa Wild and Scenic River / Area of Critical Environmental Concern Planning	Bureau of Land Management is developing a Joint Management Plan for these two overlapping management units.	Currently in pre-NEPA scoping.
<i>Mojave and Silurian Valley</i>		
Razor OHV Recreation Area – Planning	California State Parks is preparing a pre-plan analysis report specifying the actions needed to develop and sustain OHV recreation opportunities in the area.	Began September 2013
<i>Owens River Valley</i>		
Digital 395 Project	A new 583-mile fiber network that mainly follows the U.S. Route 395 highway between Nevada and California. Also located in West Mojave and Eastern Slopes ecoregion subarea.	Findings of No Significant Impact (FONSI) issued August 2012, under construction

Table IV.25-4
Other Large Projects Within the DRECP Boundary

Projects	Acres	Status
<i>Panamint Death Valley</i>		
Briggs Mine Expansion	Briggs Corporation would amend their Plan of Operations to develop the Goldtooth South Project that would require a 94-acre extension within their existing 2,363-acre permitted mine.	ROD issued 2012
<i>Pinto Lucerne Valley and Eastern Slopes</i>		
Proposed 29 Palms Training Land/Airspace Acquisition Project	The Marine Corps studied alternatives for training—land acquisition and accompanying Special Use Airspace. The proposed alternatives would expand the Marine Corps Air Ground Combat Center Twentynine Palms by 163,928 acres to the west and south.	ROD issued February 19, 2013; Marine Corps will commence using the area in 2015
<i>West Mojave and Eastern Slopes</i>		
California High Speed Rail	The high-speed rail is a rail system from San Francisco to Los Angeles with extension to Sacramento and San Diego—a total of 800 miles. Initial operating section planned from Merced through Palmdale to the San Fernando Valley.	UC from Fresno to Bakersfield, further development planned and approved.
Comprehensive Groundwater Cleanup Strategy for Historical Chromium Discharges from PG&E's Hinkley Compressor Station	Comprehensively contain and remediate the chromium plume from the historical chromium discharges from the PG&E Hinkley Compressor Station. PG&E is under orders from the Lahontan Water Board to stop plume expansion and clean up the chromium plume.	Ongoing – modifications to the ongoing program considered in 2013.
Eastern Kern County Land Acquisition	California State Parks is planning to acquire up to 59 privately owned parcels (approximately 28,275 acres) in eastern Kern County, California, from ReNu Resources LLC. The parcels are interspersed with lands owned by the BLM in the western Mojave Desert, approximately 20 miles north of Mojave and west of SR-14. Off-highway vehicle recreation occurs on many of the parcels, largely on designated roads and trails. The project comprises purchase and management of the parcels for the resource protection.	Approved October 2013
High Desert Corridor (New State Route 138)	Caltrans and LA County Metropolitan Transportation Authority propose the High Desert Corridor, a 63-mile long east–west freeway/expressway, possible toll or rail facility, and possible bike path and green energy element.	NOP July 2013

Table IV.25-4
Other Large Projects Within the DRECP Boundary

Projects	Acres	Status
LADWP Barren Ridge Transmission Project	New 76-mile 230 kV transmission line from the Barren Ridge Switching Station to Haskell Canyon area. Project would result in 70 acres of permanent disturbance.	ROD issued Sept 2012
LaPozz Mine	A new surface mining operation for pozzolan material located on 145 acres of mining claims administered by the BLM.	OP
Tehachapi Renewable Transmission Project	An estimated 173 miles of new and upgraded high-voltage electric transmission lines and substations to deliver electricity from new wind projects in eastern Kern County resulting in 171 acres of permanent ground disturbance.	UC
West of Devers Transmission Upgrade Project	The removal and replacement of 48 miles of existing 220 kV transmission lines with new double-circuit 220 kV transmission lines, between the existing Devers Substation (near Palm Springs), Vista Substation (in Grand Terrace), and San Bernardino Substation	Draft EIR/EIS published Aug 2015

Sources: CEQANet; BLM El Centro Field Office: <http://www.blm.gov/ca/st/en/fo/elcentro/nepa.html>; BLM Ridgecrest Field Office: <http://www.blm.gov/ca/st/en/fo/ridgecrest.html>; Barstow Field Office: <http://www.blm.gov/ca/st/en/fo/barstow.html>; Needles Field Office: <http://www.blm.gov/ca/st/en/fo/needles.html>; Palm Springs Field Office: <http://www.blm.gov/ca/st/en/fo/palmsprings.html>; California State Parks: http://www.parks.ca.gov/?page_id=24357; Imperial County: <http://www.icpds.com/?pid=988>; USFWF Sonny Bono Salton Sea: http://www.fws.gov/refuge/Sonny_Bono_Salton_Sea/what_we_do/planning.html; Marine Corps Twentynine Palms: <http://www.29palms.marines.mil/Portals/56/Docs/G4/LAS/Project%20Update%20Notice%20No%2017%20Leg%20Outcome%20Final.pdf>; http://ohv.parks.ca.gov/?page_id=27211.

West Mojave (WEMO) Route Network Project

The BLM published the West Mojave (WEMO) Route Network Project (WMRNP) Supplemental Draft EIS in December of 2014. The WMRNP includes land use plan amendments to the CDCA Plan as well as implementation-level decisions, particularly concerning travel management and the route network in the West Mojave region. Because it is anticipated that the WMRNP will be completed after the DRECP LUPA Record of Decision, implementation actions within the WMRNP will be subject to the DRECP LUPA, and thus are not cumulative actions. However, the land use plan amendment portions of the WMRNP, while consistent with the DRECP LUPA, would be in addition to the decisions made in the DRECP, and therefore are properly considered as reasonably foreseeable future actions. All action alternatives for the WMRNP include the following land use plan amendments:

- PA I: Change the CDCA Plan language that limits the WEMO route network to existing routes of travel as of 1980

- PA II: Update the CDCA Plan to incorporate the TTM process.
- PA III: Update OHV Area designations in the CDCA Plan to reflect changes made through wilderness designations.
- PA IV: Identify CDCA Plan amendment triggers.
- PA V: Update the livestock grazing program in the CDCA Plan to reflect changes made under authority of the 2012 Appropriations Act (Public Law 112-74).

In addition, the Preferred Alternative (Alternative 3), includes the following plan amendments:

- PA VI: Alternative 3 would delineate eight Travel Management Areas (TMAs) and associated modes of access and travel. The boundaries of the eight TMAs are shown in Figure 2.3-2, and are summarized in Table 2.3-3.
- PA VII: Under Alternative 3, there would be “C” routes available for competitive motorized races managed under a Special Recreation Permit year-round outside of ACECs, including outside of DWMAs (see Table 2-2 of the 2005 WEMO FEIS) in three distinct areas to enhance riding opportunities out of the smaller Spangler Hills OHV Area and partially offset the loss of similar riding opportunities in the Johnson Valley OHV Area, and to connect the Spangler Hills OHV Area to the community of Ridgecrest. These three areas are: to the northeast of the Spangler Hills OHV Open Area; the Summit Range plus the area east of Highway 395; and the urban interface area between the community of Ridgecrest and the Spangler Hills OHV Open Area.
 - The Johnson Valley to Parker Valley Race Corridor would be deleted and may be offset by additional “C” routes in the planning area outside of DWMAs and other ACECs that are identified as open “C” routes through the route designation process, consistent with TMA goals.
- PA VIII: Alternative 3 would add Koehn, Cuddeback, Coyote, and Chisholm Trail Lake lakebeds to the list of designated Lakebeds. Koehn Lakebed would be designated as “Closed to Motor Vehicle Access, except by Authorization, including Special Recreation Permit”. Cuddeback, Coyote, and Chisholm Trail Lake Lakebeds would be designated “Open” to motorized use, subject to area specific minimization measures.
- PA IX: In Alternative 3, the permit system established for motor-vehicle access to the Rands Mountains-Fremont Valley Management area would be replaced with a limited designated network that is intensively managed. Initial management parameters would be identified in the travel management plan. Other general ACEC parameters would remain unchanged from the No Action alternative.
- PA X: Alternative 3 would continue to limit camping to previously disturbed areas adjacent to routes within 50 feet from the route centerline inside DWMAs. Stopping

and parking would continue to be limited to within 50 feet of the centerline within DWMA's, except as site-specifically designated. Outside of DWMA's, camping would be further limited to previously disturbed areas adjacent to routes within 100 feet from the route centerline, while stopping and parking would be limited to within 100 feet of centerline, except as site-specifically designated.

- PA XI: Livestock grazing in active allotments would not change. Currently inactive, vacant allotments in DWMA's and other desert tortoise habitat would be unavailable for grazing in their entirety. These include the Buckhorn Canyon, Harper Lake, Cronese Lake, Cady Mountain, Johnson Valley, Double Mountain and Oak Creek Allotments. There would be a reallocation of forage attributable to 343,576 acres for livestock grazing to wildlife use and ecosystem functions within these allotments. See Table 2.4-3 in section 2.4 for a comparison of acres between alternatives that would be available for grazing.

IV.25.2.2 Cumulative Projections

The following summarizes information regarding development trends and goals presented in county General Plans and General Plan Updates. It also provides information regarding the status of counties' renewable energy plans for the counties that have received grants from the CEC.

IV.25.2.2.1 Counties Within the DRECP

Imperial County

According to the California Department of Finance, Imperial County's population is projected to grow from 175,389 in 2010 to 294,585 in 2040 (68%) (DOF 2013). As noted in the County of Imperial 2014-2021 Housing Element (County of Imperial 2013), the majority of this growth is expected to occur within the 11 townsites located in the unincorporated areas of Imperial County. These townsites are Bombay Beach, Desert Shores, Heber, Niland, Ocotillo/Nomirage, Palo Verde, Salton City, Salton Sea Beach, Seeley, and Winterhaven. Imperial County predicts that the largest growth sectors countywide in terms of jobs are education, health, social services, agriculture, forestry, fishing and hunting, mining, and retail trade. The geothermal industry has also become an important part of the county's industrial base. One particularly large development is the Imperial Regional Center, a mixed-use commercial development with wholesale outlets, art galleries, a cinema, restaurants, outdoor performance center, artificial river, and a hotel and gas station (Varin 2010). The development is located on 77.64 acres of farmland within an unincorporated area of the county near Heber and 4.5 miles from the U.S./Mexico border (County of Imperial 2006). It is expected to contain 900,000 square feet of commercial facilities. Satellite imagery reveals that only a few structures have been constructed at this location.

Imperial County has created several “specific plan areas” where a Specific Plan, approved by the Imperial County Board of Supervisors, is required prior to any significant new use or development, except agricultural use. Specific Plans are defined as “‘planning tools’ used to implement the General Plan for large development projects such as a planned residential community, large-scale commercial project, industrial park, etc., or to designate an area of the County where further studies are needed prior to development” (County of Imperial 2008: 13). Specific Plan Areas for Imperial County are summarized below.

The Gateway of the Americas Specific Plan Area is located adjacent to the International Boundary approximately 5 miles east of the city of Calexico and comprises approximately 1,700 acres. It is bordered on the west by the Ash Canal, on the north by a strip of land approximately 1,300 feet north of Highway 98, on the east by the Alamo River, and on the south by Mexico.

The Imperial County Glamis Specific Plan Area includes approximately 160 acres bisected by State Highway 78 approximately 27 miles east of the city of Brawley. This area is immediately adjacent to the Imperial Sand Dunes Recreation Area and noted for recreational activities at the Algodones Sand Dunes and Osborne Scenic Overlook, particularly off-road vehicle use. Future developments would relate to recreational land use and include retail and service commercial, motels, recreational vehicle and mobile home parks, and community facilities.

The Holtville Airstrip Specific Plan Area encompasses approximately 1,830 acres located 6 miles east of the city of Holtville. It is bordered by the East Highline Canal on the west. The Holtville Airstrip, used as an auxiliary air station by the U.S. Navy in WWII, is currently unattended. It does not contain any facilities and is seldom used. Imperial County proposes to allow development of a regional airport and support facilities and accommodate light-medium industrial uses as well as community facilities and agricultural packing and processing services.

The Mesquite Lake Specific Plan Area is located between the cities of Imperial and Brawley and encompasses approximately 7,360 acres bounded on the west by State Route 86, on the north by Carey Road, on the east by Highway 111, and on the south by Harris Road. This area could support agriculture-related uses including packing and processing, waste processing, equipment manufacturing and maintenance, and the production and distribution of fertilizers and pesticides. This area could also support geothermal development.

The Heber Specific Plan Area encompasses approximately 4,834 acres between Jasper and Willoughby Roads to the south, SR-86 to the west, McCabe Road to the north, SR-111 to the east, and a 1,320-foot strip of land east of SR-111 stretching from Correll Road and Heber Road. Imperial County proposes that this area support mixed-use development, including

commercial, residential, industrial, and other employment-oriented development. There is a plan to establish a 40-acre or larger regional park along McCabe Road.

The Wonderstone Aggregate Specific Plan Area encompasses approximately 721.33 acres located about 2 miles west of the community of Salton Sea Beach in the northwestern portion of Imperial County. Future development in this area would center on the mining, processing, production, and storage of aggregate products including hot mix asphalt and Portland cement concrete.

The General Plan notes that Imperial County is and will continue to be a predominantly agricultural area.

Imperial County Geothermal/Alternative Energy & Transmission Element

The County of Imperial was the recipient of a CEC Grant on July 15, 2013, to update the existing “Geothermal/Alternative Energy & Transmission Element” of the General Plan. This included publishing a Renewable Energy Resources Ordinance in addition to the element. The county designed the element to provide guidance and approaches with respect to future siting of renewable energy projects and electrical transmission lines. This is intended to take into account the expansion of new types of renewable energy and the potential and probable expansion of transmission. It includes geothermal and other alternative energy overlay zones that would facilitate the development of renewable energy. The Final EIR for this Element was published in July 2015.

The County of Imperial was the recipient of a second CEC Grant on July 22, 2014, to update the existing “Conservation and Open Space Element” of the General Plan. Other objectives include recognition of various resources that may be impacted by future renewable energy resource technologies, identification of areas more suitable for project development, review areas around the Salton Sea eligible for renewable energy and/or habitat conservation, review proposed transmission corridors and impacts, development and identification of potential sites for endangered and threatened species/species of concern, develop an outreach program, and prepare the required environmental documents. This update is still in the early stages.

Inyo County

According to the California Department of Finance, Inyo County’s population is projected to grow from 18,528 in 2010 to 22,009 in 2040 (19%) (DOF 2013). As noted in the Inyo County Housing Element (Inyo County Planning Department 2009), the majority of this growth is expected to occur in the unincorporated areas of the county. The county seeks to concentrate this new growth within and contiguous to existing communities such as Bishop, Big Pine, Independence, and Lone Pine (Inyo County Planning Department 2013a). Inyo County

hopes to acquire several sites currently owned by Los Angeles Department of Water and Power to facilitate the development of affordable housing (Inyo County Planning Department 2009, 2013b). The largest employers in the county are within the service sector, retail trade, and public administration (Inyo County Planning Department 2009). The county expects growth in tourism-related employment and wants to market Inyo County as a tourist destination (Inyo County Planning Department 2013c). Additional areas of growth and economic development are projected to occur in agriculture, renewable energy projects, and natural resources extraction (Inyo County Planning Department 2013d).

In addition to the large renewable energy facilities proposed in Inyo County and summarized in Table IV.25-1, the Fort Independence Indian Community of Paiute Indians proposes to develop a combination Class II and Class III Gaming Complex and associated full service hotel structure within the western portion of the 360-acre Fort Independence Indian reservation along U.S. 395. The complex would also include a conference center, multipurpose event center, and related facilities (Inyo County Planning Department 2014c).

Inyo County Renewable Energy General Plan Amendment

Inyo County received a grant from the CEC to update the Inyo County General Plan. This update is proposed to address renewable solar energy development. As part of the update, Solar Energy Development Areas are proposed where renewable projects could be developed. This development would be based on the Programmatic Environmental Impact Report prepared for the General Plan Amendment, and based upon future site specific studies, additional environmental review, and permitting pursuant to the County's Renewable Energy Ordinance Title 21, and other applicable State, federal, and local laws. Other updates proposed for the General Plan include capping solar development in each SEDA based on megawatts and corresponding acreages; identifying and defining appropriate scales and sizes of solar facility development. On March 24, 2015 the Inyo County Board of Supervisors approved GPA 2013-02/Inyo County (Renewable Energy).

The County was awarded a second grant that is funding a study of the Owens Valley for solar development. The first round of public meetings for this project were held in June 2015.

Kern County

Kern County's population is projected to grow from 841,146 in 2010 to over 1.6 million in 2040 (90%) (DOF 2013), with the majority of growth projected in the Greater Bakersfield area (Center for Rural Entrepreneurship 2011). The Tehachapi Mountain communities have a projected growth of 50% to 60% by 2040, and western Kern may see modest growth of 5% to 10% (Center for Rural Entrepreneurship 2011). from 2011 to 2040, increases are projected for most employment sectors, with a doubling of professional

services and health and education employment. Construction employment, however, is projected to decrease from current levels (California DOT 2011).

Los Angeles County

According to the California Department of Finance, Los Angeles County's population is projected to grow from 9,824,906 in 2010 to 11,243,022 in 2040 (15%) (DOF 2013). As noted in the Los Angeles County General Plan, the largest growth sectors countywide in terms of jobs are professional, scientific and technical services, health services, and retail trade. Specific industries that have the most potential to contribute to the economy include entertainment, fashion, aerospace and analytical instruments, trade, education and knowledge creation, publishing and printing, metal manufacturing, biomedical, and tourism (Los Angeles County 2013a). The General Plan outlines several "opportunity areas" organized into the following types: transit centers, neighborhood centers, corridors, industrial flex districts, and rural town centers. In addition, Los Angeles County has created 11 "planning areas" that divide the unincorporated areas of Los Angeles County into sections based on geographical location and similarities in land use and economy. The most relevant planning areas for Los Angeles County were reviewed.

Los Angeles Renewable Energy Ordinance

Los Angeles received a CEC grant to develop a renewable energy ordinance. The Los Angeles Renewable Energy Ordinance is a countywide ordinance that amends Title 22 (Planning and Zoning) of the Los Angeles County Code to provide a set of definitions, procedures and standards for review and permitting of solar and wind energy projects. These include solar and wind projects generating energy for on-site (small-scale) or off-site (utility-scale) use as well as temporary meteorological (MET) towers. The Los Angeles Board of Supervisors held a public hearing on the Renewable Energy Ordinance on July 14, 2015. The Board introduced a motion to prohibit all utility-scale wind projects. After hearing testimony, the Board closed the public hearing and indicated its intent to approve the ordinance with the ban on utility-scale wind projects.

Riverside County

According to the California Department of Finance, Riverside County's population is projected to grow from 2,191,886 in 2010 to 3,462,256 in 2040 (58%) (DOF 2013). As noted in the County of Riverside General Plan (Riverside County Planning Department 2008), the majority of this growth is expected to take place in the western portion of the county, which currently contains the largest portion of the population. Approximately 57,000 new housing units are needed to accommodate anticipated population growth in unincorporated areas of Riverside County from 2006 to 2014. Riverside County predicts

that the largest growth sectors countywide in terms of jobs are business related services, wholesale trade, state government, and manufacturing. Riverside County expects 543,000 job openings from 2006 to 2014 (Riverside County Planning Department 2008). As described in the General Plan, one future project expected to fuel additional development in the county is the Oasis Transit System, which entails localized transit loops centered around areas of compact development, and tied in with regional transit corridors and the county's Metrolink system (Riverside County Planning Department 2013a). These areas of compact development would contain a mix of uses designed to serve each community. Riverside County has created 11 "area plans" that divide the unincorporated areas of Riverside County into sections based on geographical location and similarities in land use and economy. Planning projections for the most relevant planning areas in Riverside County were used in this cumulative effects analysis.

The Desert Center Area Plan is located in the middle of the Colorado Desert in eastern Riverside County and lies approximately 55 miles east of the city of Coachella and 55 miles west of the city of Blythe. As stated in the Desert Center Area Plan (Riverside County Planning Department 2011f), this is an area generally lacking in infrastructure and with little urban and suburban development. Economic activities are centered around the Desert Center-Rice Road interchange, which includes commercial and industrial uses designed to serve the needs of highway travelers. The Lake Tamarisk community includes residential housing, a lake, and a golf course. Two policy areas are of particular interest in terms of future growth within the Desert Center Area Plan. The first policy area is the Eagle Mountain Landfill and Townsite, home of the former 5,500-acre Kaiser iron ore mining facility and adjacent community that provided housing and services for workers and their families. The Eagle Mountain Pumped Storage Facility is also proposed for this area and the Federal Energy Regulatory Commission has issued a license for this project. The second policy area is Desert Center, located between the existing Desert Center and the Lake Tamarisk community. This area has the potential to accommodate limited future expansion in residential, commercial, recreational, and tourist-oriented uses. Many renewable energy projects are proposed or already approved in this area.

The Palo Verde Valley Area Plan is situated between the Palo Verde Mesa to the west and the Colorado River to the east. It borders Imperial County to the south, and desert lands border the area to the north and west. The Palo Verde Valley Area Plan does not share a border with any other area plan in Riverside County. Highly irrigated lands are in the eastern and southern parts of the county and arid desert to the west and north. According to the Palo Verde Valley Area Plan (Riverside County Planning Department 2011g), the city of Blythe is the focus of development in Palo Verde Valley. Major sources of employment are the Chuckwalla and Ironwood State Prisons, which combined house about 8,000 inmates and have about 2,000 employees (2011g: 11). Two policy areas are of particular

interest in terms of future growth within the Palo Verde Valley Area Plan. The first is the area along the Colorado River, which has the potential for commercial tourist developments such as river-oriented hotels, fishing camps, marinas, and resort parks, along with residential developments such as second homes and/or housing for workers at the various tourist facilities. The second policy area is the Wiley's Well Road policy area located adjacent to I-10, west of Nicholls Warm Springs and north of the state prisons. This area could accommodate additional commercial tourist services to serve travelers.

Riverside County General Plan Amendment

Riverside County received a CEC grant to update the General Plan to expand renewable energy development policies and maps. This included in inventory of existing renewable energy projects, identifying opportunities and constraints for renewable energy development potential, expanding and enhancing General Plan maps and policies addressing renewable development, and improving land use and coordination for the DRECP and the Salton Sea. The county is at the early stages of implementing this grant.

San Bernardino

According to the California Department of Finance, San Bernardino County's population is projected to grow from 2,038,523 in 2010 to 2,988,648 in 2040 (47%) (DOF 2013). As stated in the County of San Bernardino General Plan, most of this growth is expected to occur in the western portion of the county, much of which is not within the DRECP (CSBLUSD 2007a). The majority of economic development in San Bernardino County is expected to occur in construction and maintenance occupations, as a lot of building activity is taking place. Several renewable energy projects have been proposed for San Bernardino County. As of December 26, 2013, seven projects were under review, ten were approved but not yet constructed, and six had been constructed (CSBLUSD 2013).

In terms of land use, Resource Conservation comprises the majority (55.98%) of designated land uses in the county while Residential Land Use comprises the second largest land use designation (37.92%). County land use designations for the spheres of influence of the largest cities in San Bernardino County include a total build-out potential of 148,932 dwelling units, 109 million square feet of commercial space, and 302.4 million square feet of industrial space (CSBLUSD 2007a: 11-25 to 11-26). According to the city land use designations for the spheres of influence of the largest cities in San Bernardino County, the total build-out potential is 124,853 dwelling units, 72.3 million square feet of commercial space and 244.8 million square feet of industrial space (CSBLUSD 2007a: 11-26).

The County of San Bernardino General Plan divides the county into three planning regions, based on geographic location — Valley, Mountains, and Desert — and outlines policies

drafted specifically for each of these regions (CSBLUSD 2007a). Both the Valley and Mountain regions are outside of the DRECP area.

The Desert Planning Region contains a large portion of the Mohave Desert and comprises 93% (18, 735 square miles) of the land within San Bernardino County (CSBLUSD 1007a: 1-15 to 1-16). Little population growth is expected in this region from 2010 to 2020.

Renewable Energy General Plan Element

San Bernardino County received a grant from the CEC to update the General Plan with a Renewable Energy and Conservation Element. The county published a first draft of the framework early 2015, that set out the following goals for renewable energy development

- Guide community and regional development to meet the needs of the present without compromising the ability of future generations to meet their own needs.
- Encourage distributed generation that addresses local needs while allowing excess energy to be sold to the grid.
- Ensure that new renewable energy development is located, designed and constructed in a manner that reflects community values and respects private property rights.
- Conserve and sustain sensitive natural resources and habitats.
- Encourage economic growth that complements local values and lifestyles.
- Reduce greenhouse gas emissions in response to State mandates.
- Pursue energy security and independence.

The county received a second grant to complete the element and complete additional studies.

San Diego County

As noted in the San Diego General Plan, San Diego expects the majority of growth to be in residential, commercial, and industrial development (County of San Diego 2011a). The County predicts that over 232,000 future homes will be constructed, and that 20% of that construction will take place in the western communities. According to the California Department of Finance, San Diego County's population is projected to grow from 3,102,745 in 2010 to 3,749,240 in 2040 (21%) (DOF 2013). The county recommends that future growth is directed to areas where existing or planned infrastructure and services can support growth and to locations within or adjacent to existing communities. They expect to spend \$4.5 billion on highway improvements, primarily interstate improvements on an outer loop that includes State Routes 67, 94, and 125 (County of San Diego 2011b). Plans

are being made to expand the High-Speed Rail Alignment via the I-15 corridor, which would link downtown San Diego to Escondido, Riverside County, and Los Angeles. As stated in the County of San Diego Bicycle Transportation Plan (2003), the county also proposes the creation of nine additional bikeways that will ensure bikeway connectivity between jurisdictional boundaries. The County also relies on extensive habitat management planning in order to provide for conservation in a manner that still allows for development.

IV.25.2.2.2 Counties Along the Transmission Outside the DRECP Area

Alameda County

The northern terminus of the Central Valley corridor is located in northeast Alameda County, just south of Interstate 580 and approximately 6 miles east of the Livermore urban boundary. This portion of the County falls under the East County Plan Area, and is designated for wind resources. In November 2000 the Alameda County electorate approved the Save Agriculture and Open Space Lands Initiative, which amended portions of the plan to change some land designation from Urban Reserve to Large Parcel Agriculture, reducing the development in some areas of the DRECP area. The majority of the East County Plan Area is designated parklands, resource management, and large parcel agriculture (Alameda County 2000).

Fresno County

In Fresno County, the Central Valley corridor continues to extend southeast to northwest, mostly along the west side of Interstate 5. The route skirts agricultural lands, and is generally in the base of the foothills of the Diablo Range. The 2000 General Plan designations for this western portion of the county include Westside Rangeland and Coalinga Regional Plan Area. The rangeland designation provides for grazing and other agricultural operations, mining, oil and gas development, wildlife habitat, various recreational activities, and other appropriate open space uses. As shown in a map from the County of Fresno's Department of Public Works and Planning Department, the western portion of the county is a popular location for solar power development (County of Fresno 2013a). Meanwhile, the Westside Freeway Corridor overlay provides for designated I-5 interchanges that cater to long distance freeway users and agriculture-related enterprises (County of Fresno 2013b).

Fresno County's population is projected to grow from 932,377 in 2010 to over 1,397,000 in 2040 (50%) (DOF 2013). According to the County of Fresno, its population is projected to grow from 769,700 in 1996 to 1,113,785 in 2020 (45%) (County of Fresno 2013c). The majority of this growth is expected to occur in the Fresno metropolitan area (2013c). As stated in the General Plan, the majority of jobs in Fresno County are in agriculture and

construction (County of Fresno 2013d). Fresno County has a high unemployment rate and the county seeks to promote economic development and job growth by retaining and expanding existing businesses, encouraging the development of value-added businesses, attracting new industry, improving the skill of the workforce, and facilitating the creation of higher-paying jobs (County of Fresno 2013d).

Coalinga is located at the junction of Highway 33 and Highway 198, with 3,858 acres within city limits. Its proposed 6,301-acre sphere of influence extends over 2 miles to the east and 2 miles to the north of the city limits. As noted in the City of Coalinga General Plan, the city expects to experience significant population growth (98%) from 11,217 in 2005 to 22,188 in 2025. To accommodate this predicted growth, several development proposals featuring residential components are currently proposed in the city (Coalinga 2009).

Kern County

In Kern County, the Central Valley corridor commences at the Whirlwind Substation, west of Rosamond in the Antelope Valley. It trends northwest across the Tehachapi Mountains, and traverses the San Joaquin Valley to south of the Bakersfield metropolitan area. from Buttonwillow, the corridor heads northwest along I-5. In the Central Valley portion of the County, the study area mostly crosses agricultural lands, passing the census-designated places of Buttonwillow (at the junction of Highway 58 and I-5) and Lost Hills (on Highway 46, west of I-5). The 2010 Census recorded populations of 1,508 and 2,412, respectively. The economy of these towns is largely agricultural (Buttonwillow Chamber of Commerce 2013). The Hydrogen Energy California project, an integrated gasification combined cycle power generating facility, is proposed in the hills south of Buttonwillow (CEC 2013a). The Tule Elk Reserve State Park is also located south of Buttonwillow.

Kings County

In Kings County, the Central Valley corridor extends southeast to northwest on the eastern side of I-5. It passes through two urban areas, Kettleman City and Avenal. Per the Kings County 2035 General Plan, agriculture would comprise 84% of land use in Kings County, including lands just east of I-5 beyond city jurisdiction. The county would continue to direct urban growth within fringe areas of cities for annexation, and would accommodate new unincorporated growth within “Community Districts” served by special districts (Kings CDA 2010). In addition, the Naval Air Station Lemoore is situated approximately 18 miles northeast of Avenal, west of the city of Lemoore (Kings COG 2011). The Santa Rosa Rancheria, located in Lemoore, is home to approximately 500 Tachi Yokut Indians residing on 1,535 acres of tribal land (Kings CC 2010). The County’s population is projected to grow from 152,656 in 2010 to over 235,000 in 2040 (54%) (DOF 2013). The majority of this population growth is likely to occur within the incorporated cities of Hanford and Lemoore

(Kings CC 2010). As noted in the 2009-2014 Housing Element, local government, trade/transportation/utilities, agriculture, retail trade, and education/health services are expected to have the largest job growth during this period (Kings CC 2010).

Within Kings County, the Kettleman City Community Plan directs residential growth to occur in phases, first to the north and west, and then to the east of the existing developed area. The three phases would include 5,504 new housing units. An agricultural/open space buffer would be maintained along the residential boundary. This community plan would also establish a new 8.5-acre downtown commercial area on the south side of the city, along Highway 41 (Kings CDA 2010).

Los Angeles County

In addition to the information provided in Section IV.25.2.2.1 for Los Angeles County, several community and subregional plans are along the transmission corridors. East San Gabriel Valley Planning Area is located south of the Angeles National Forest, north of the Orange County border, and east of Interstate 605. The planning area's eastern border is the San Bernardino County line. The biggest economic sectors in this area are professional and business services, retail, educational and health services, and international trade. The Los Angeles County General Plan identifies three communities with the most opportunity areas for the East San Gabriel Valley Planning Area—Avocado Heights, Charter Oak, and Covina Islands (Los Angeles County 2013b). These communities hold the potential for redevelopment projects and improvements of pedestrian corridors.

Gateway Planning Area is located in the southeastern portion of the county. The eastern border of the planning area is the Orange County line. There is little vacant land in this area and little room for additional growth. It has the largest concentration of manufacturing jobs in the county and is a hub for wholesale, trade, warehousing, and logistics. The Los Angeles County General Plan identifies two communities with the most opportunity areas for the Gateway Planning Area—Rancho Dominguez and West Whittier-Los Nietos (Los Angeles County 2013b). These communities are recommended for community revitalization projects, additional parks, and redevelopment.

West San Gabriel Planning Area is bordered on the north by Angeles National Forest and Downtown Los Angeles and the Gateway Planning Area comprise the southern border. The eastern border of the planning area is I-605. This is an employment rich area; two of the main employers are the Jet Propulsion Laboratory and the California Institute of Technology. This area also serves as a gateway for goods movement infrastructure heading east. The Los Angeles County General Plan identifies three communities with the most opportunity areas for the West San Gabriel Planning Area—Altadena, East Pasadena-East San Gabriel, and South Monrovia Islands (Los Angeles County 2013b). These communities

have the potential for commercial growth, transit-oriented development, and improvements to pedestrian and bicyclist facilities.

Merced County

In Merced County, the Central Valley transmission corridor runs in the foothills of the Diablo Range, crossing the Los Banos Reservoir and the O'Neill Forebay of the San Luis Reservoir. The 2030 General Plan Draft primarily designates this land as foothill pasture, with a few agricultural portions. Urban areas along the corridor include Santa Nella as well as urban zoning for the proposed Fox Hills and Villages of Laguna San Luis developments (Merced County 2012). The county's population is projected to grow from 255,937 in 2010 to over 436,000 in 2040 (70%) (DOF 2013). Based on studies of past population growth trends for Merced County, the majority of this new population growth will occur in the incorporated cities, particularly Los Banos (Merced County 2010). Agriculture serves as the foundation of Merced County's economy and the county ranks as one of California's top five producers of milk and cream, chickens, alfalfa, cattle and calves, silage, and tomatoes. There are few other employers outside agriculture, and the county wants to diversify its economy and attract new industries while continuing to expand the agricultural industry (Merced County 2012).

Riverside County

In addition to the information provided in Section IV.25.2.2.1 for Riverside County, several community and subregional plans are along the transmission corridors. The most relevant planning areas for Riverside County were consulted for this project.

Eastern Coachella Valley Area Plan is located within the southeast portion of the Coachella Valley, stretching to the Imperial County line on the south. As stated in the Eastern Coachella Valley Area Plan (Riverside County Planning Department 2012a), most of the future growth in this region is expected to occur in the agricultural sector. A community center has been designated at the northwestern edge of the community development area in Mecca. A community center is a method of concentrating development to achieve community focal points, encourage a mix of activities, and promote economic development, etc. The community center in Mecca could host a mix of residential, commercial, public facility, and recreation uses to serve local residents.

Western Coachella Valley Area Plan is surrounded by the mountainous area of the Riverside Extended Mountain Area Plan (REMAP) to the west and southwest and San Bernardino County and the Joshua Tree National Park to the northeast. The Western Coachella Valley Area Plan proposes a mix of lower density residential land uses near urban centers (Riverside County Planning Department 2012b). Community development

would be focused along I-10 and Pierson Boulevard and Dillon Road Corridors. The city of Rancho Mirage is viewed as having significant development potential. There are 4,500 acres of land in West Coachella Valley designated for industrial development, and most are located along the I-10 corridor.

The Pass Area Plan is situated in the narrow gap between the San Bernardino and San Jacinto mountains. According to the Pass Area Plan (Riverside County Planning Department 2011a), San Gorgonio Pass has been designated a Wind Energy Policy Area as it is one of the best areas in the nation for wind development.

The Reche Canyon/Badlands Area Plan is adjacent to the Lakeview/Nuevo Area Plan, and the plans for Mead Valley, March Air Reserve Base, Highgrove, The Pass, and San Jacinto Valley. As noted in the Reche Canyon/Badlands Area Plan (Riverside County Planning Department 2011b), the land in this area is used primarily for agricultural, rural, residential, commercial, mining, public facility, and recreational uses. Mining operations are expected to continue at the Valley Rock and Sand Company on Jack Rabbit Road.

The city of Perris borders the Lakeview/Nuevo General Plan on the west and the city of San Jacinto borders this area plan on the east, while Lake Perris is located immediately to the north. According to the Lakeview/Nuevo General Plan (Riverside County Planning Department 2011c), two adjacent areas designated as community centers are located to the west of San Jacinto River.

San Jacinto Area Plan is located near the massive territory of the Riverside Extended Mountain Area Plan (REMAP). According to the San Jacinto Area Plan (Riverside County Planning Department 2011d), agriculture is integral to the economy and culture of this area and future agricultural growth should be promoted. The San Jacinto Area Plan also notes that growth should be focused in the East Hemet and Valle Vista areas. Growth of recreational facilities, tourist-oriented facilities, and commercial services are also expected to develop in the future around the recently built Diamond Valley Lake, a reservoir with 800,000 acre-feet capacity located in the southwestern corner of the San Jacinto Area Plan.

The Harvest Valley/Winchester Area Plan encompasses only unincorporated territory, but the cities of Perris and Hemet frame this sprawling 32,000-acre valley on the west and east, respectively. The massive Diamond Valley Lake dominates the southeastern portion of the Harvest Valley/Winchester area. As stated in the Harvest Valley/Winchester Area Plan and described in the San Jacinto Area Plan (Riverside County Planning Department 2011e, 2011d), the area surrounding Diamond Valley Lake holds the potential for future development associated with tourism and recreational activities. Two future community centers are planned for the San Jacinto area—one in the community of Winchester that would be designed with an “Old West” theme and the second would be located west of

Winchester Road and south of Holland Road. This latter community center would serve as a downtown area for future developments to the west and could accommodate an entertainment center intended to capitalize on the proximity of Diamond Valley Lake and its many recreational opportunities.

San Bernardino County

In addition to the information provided in Section IV.25.2.2.1 for San Bernardino County, several community and subregional plans are along the transmission corridors. Three specific plans and the most pertinent area plan for San Bernardino County are described below.

The Glen Helen Specific Plan includes 3,400 acres of unincorporated territory in the Devore area, south of the intersection of the I-15 and I-215 freeways. This Specific Plan provides for the following development and open space potential: 260 acres of industrial development along Cajon Boulevard and Kendall Drive, 100 acres of traveler services at freeway interchanges and business support services for nearby employees, and 260 acres of destination entertainment and recreation uses within private and public lands (CSBLUSD 2005).

The Kaiser Commerce Area Specific Plan is a 468-acre project located on a portion of the site of the former Kaiser Fontana steel mill in the southwest portion of San Bernardino County, near the interchange of I-10 and I-15 (CSBLUSD 1999: 1-1). Following the decline of steel-making activities at the mill, this area became very blighted and fell into disrepair, which discouraged development along the I-10 and I-15 corridors. The county wants to convert the former steel mill to productive status and revitalize the site for a variety of transportation and commercial uses. Development of private industry involved in recycling is also proposed for this area.

San Diego County

In addition to the information provided in Section IV.25.2.2.1 for San Diego County, several community and subregional plans for San Diego County are along the transmission corridors. As stated in the Alpine Community Plan (County of San Diego 2011c), a small commercial and residential development is planned south of Alpine Blvd. in the vicinity of South Grade Road. It will cover 16.5 acres and contain 225 single-family residential units. Alpine also expects to create additional park facilities. As noted in the Crest/Dehasa/ Harbison Canyon/Granite Hills Community Plan (County of San Diego 2011d), population is expected to grow from 10,507 in 2010 to 11, 813 in 2030. The community of Jamul-Dulzura is primarily rural and little population growth is expected.

According to the Jamul-Dulzura Subregional Plan (County of San Diego 2011e), the community plans to expand local recreational sites in Central Jamul, Deerhorn Valley Area,

and Dulzura. As stated in the Lakeside Community Plan (County of San Diego 2011f), Lakeside expects gradual residential growth and commercial development that will serve local needs and take place within the existing Lakeside Town Center. The majority of the residential and commercial developments are expected to occur in several Specific Plan Areas. One example is East County Square, a 377-acre area located on the southeast side of I-8 and Camino Cañada Interchange. The community of Lakeside predicts that a shopping center and 200 single-family dwelling units will be built there. The Lakeside Community Plan also plans to widen existing major roads.

Mountain Empire is predominantly rural and according to the Mountain Empire Regional Plan (County of San Diego 2011g), the population is expected to increase from 5,815 in 2010 to 8,844 in 2030 (52%). New growth is encouraged to take place within existing “village” areas and “town centers.” In general, the community of Mountain Empire does not expect much future agricultural or industrial growth. However, the city of Tecate, Mexico, is being proposed as an International Trade Community with commercial and industrial uses to provide goods and services that complement the needs of its residents.

San Joaquin County

In San Joaquin County, the Central Valley corridor continues southeast to northwest along the foothills of the Diablo Range west of Interstate 580. This southwestern portion of the County is designated for grazing and includes the Tracy Hills portion of the city of Tracy (San Joaquin County 1992). In addition, the Mountain House Community Services District is located 5 miles west of Tracy, north of I-580. The county’s population is projected to grow from 686,588 in 2010 to over 1.2 million in 2040 (75%) (DOF 2013). In recent years, Tracy has had a higher population growth rate than San Joaquin County as a whole (San Joaquin Partnership 2013). The employment areas in San Joaquin County with the most growth are in the retail trade, administrative, educational and health care services, and finance, insurance, and real estate (San Joaquin County 2010).

The city of Tracy is located at the junction of Interstates 580 and 205, with the Tracy Hills Specific Plan Area on the southwest side of I-580. The Specific Plan covers 6,175 acres and includes approximately 2,700 acres within city limits planned for residential, commercial, office, industrial, and recreational land uses (City of Tracy 2011). The approximately 3,550 outer acres in the sphere of influence are planned as open space for habitat conservation and grazing.

Stanislaus County

In Stanislaus County, the Central Valley corridor continues southeast to northwest along the foothills of the Diablo Range. The route is almost entirely on the west side of I-5.

Developed areas in the region are clustered along Highway 33, which runs parallel to the east of I-5. They include the cities of Newman and Patterson and the census-designated Crows Landing. Stanislaus County's population is projected to grow from 515,505 in 2010 to almost 760,000 in 2040 (47%) (DOF 2013). According to the Stanislaus County Inter-Regional Partnership, the majority of future growth in Stanislaus County will take place within the limits of incorporated cities, particularly Modesto and Turlock (2013).

Newman is located approximately 25 miles south of Modesto, just north of the Merced County border. The city proposes a 3,611-acre sphere of influence on all sides, with the primary sphere of influence (land that is expected to be annexed in ten or so years) primarily on the north side of town (City of Newman 2007).

Patterson currently extends from the California Aqueduct (just east of I-5) to east of Highway 33. The Land Use Element of the city's General Plan designates areas surrounding the city for additional development. The expansion areas are to the east and south, between the Delta Mendota Canal and the California Aqueduct and in the foothills to the west between Del Puerto Canyon Road and I-5 (City of Patterson 2010).

IV.25.3 Cumulative Impacts Analysis

IV.25.3.1 Introduction

The DRECP EIS has identified the DRECP area, portions of the California Desert Conservation Area (CDCA) outside the DRECP area, and areas outside the DRECP area in proximity to DRECP-related transmission as the geographic areas for analysis of cumulative effects. Climate change is a global issue, so its geographic extent is global. Tables IV.25-1 through IV.25-4 list projects primarily within the DRECP boundaries. For the areas outside the DRECP boundary, cumulative projections are considered.

The temporal scope of the cumulative impacts, unless specifically stated otherwise in the resource analysis, is the life of the DRECP—from adoption of the DRECP through 2040.

Because the analysis uses a broad geographic area of extent, the past, present, and future foreseeable projects and projections are the same for all alternatives. However, because the Development Focus Areas (DFAs) and conservation and recreation designations are different for each alternative, the analysis calls out distinctions by alternative as appropriate.

IV.25.3.2 Air Quality

The geographic scope for cumulative impacts to air quality includes the four air basins within the LUPA Decision Area: the Great Basin Valleys, Mojave Desert, Salton Sea, and San

Diego. The air basins along the transmission corridors outside the DRECP area are also considered part of the geographic scope.

Impact AQ-1: Plan components would generate short-term air emissions that violate any air quality standard or contribute to an existing or projected air quality violation.

As discussed in Chapter IV.2, development of the renewable energy projects and transmission permitted under the DRECP and the transmission required outside the DRECP area would result in an increase in construction dust and exhaust emissions from construction equipment and vehicles. This increase could violate or contribute to an existing violation of air quality standards, which would be an air quality impact during the limited or short-term phases of construction. The sources of construction dust and types of motor vehicle or off-road equipment sources would be similar at all development sites, as all sites would require mobilizing construction equipment and crews and creating permanent ground disturbances for various development activities. Construction-phase emissions would be distributed across the DFAs and along the transmission corridors, and would occur gradually and at different times until all individual projects are developed. For each specific project, a wide range of construction-phase emissions would occur, depending on, among other factors, each project's particular accessibility, phasing or sequencing of activity, and the fleet of construction equipment used.

All alternatives would include development within air basins that are state nonattainment areas for ozone and PM₁₀. Construction activities under any alternative would generate emissions that could contribute to the existing ozone and PM₁₀ violations. Therefore, all of the air basins available for renewable energy and transmission development under the DRECP would experience short-term air quality impacts during construction activities.

In addition to contributing to existing violations of the state ambient air quality standards for ozone and PM₁₀, construction activities would cause PM_{2.5} impacts in some areas. Specifically, the San Bernardino County portion of the federal Southeast Desert Modified Air Quality Management Area for ozone is classified as a PM_{2.5} nonattainment area, as is the portion of the DRECP area within the San Diego Air Basin, and the air basins along the transmission Outside the DRECP area. Construction activities would generate emissions that would contribute to the existing PM_{2.5} violations in these areas.

Construction activities would also occur in areas in federal nonattainment areas that would experience a short-term air quality impact from an increase in dust emissions and vehicle and equipment exhaust emissions due to renewable energy permitted under the DRECP.

The cumulative projects listed in Tables IV.25-1 through IV.25-4, the development projected in county General Plans (see Section IV.25.2), and potential future development

as part of Phase II of the DRECP would result in construction activities similar to those described for the projects permitted under the DRECP. This is because many of the projects listed in Tables IV.25-1 through IV.25-4 are renewable development or transmission so they would have similar types of impacts as described for the DRECP. The construction of cumulative projects would also contribute to existing ozone, PM₁₀, and PM_{2.5} violations because they are within federal and state nonattainment areas. However, it is unlikely that the majority of the projects listed in Tables IV.25-1 through IV.25-4 would be under construction at the same time as the renewable energy permitted under the DRECP. Only a few cumulative projects, including the California High-Speed Rail and the residential and commercial development projected inside and outside the DRECP, would combine with the construction emissions from projects permitted under the DRECP to result in a cumulative impact caused by short-term air emissions and violations of the state ambient air quality standards for ozone and PM₁₀.

All cumulative projects listed in Tables IV.25-1 through IV.25-4 would require environmental permitting and would likely incorporate mitigation measures to reduce the short-term air emissions.

Impact AQ-2: Long-term operations air emissions would violate air quality standards or contribute to air quality violations.

All of the renewable energy technologies and transmission lines permitted under the DRECP would include operations and maintenance activities. Routine upkeep of the site, security patrols, employee commuting trips, and vegetation removal cause dust emissions from vehicles or equipment that travel on unpaved surfaces. These activities also increase the use of portable equipment and motor vehicles that emit the products of fuel combustion. Because these activities would occur within both state and federal nonattainment areas, emissions from the operations and maintenance activities would exacerbate the nonattainment conditions. For some projects, operation would require installation and use of new stationary or portable sources. Emissions from these sources could violate or contribute to an existing violation of air quality standards.

The cumulative projects listed in Tables IV.25-1 through IV.25-4 and potential future renewable energy permitted as part of Phase II of the DRECP would require similar operation and maintenance, in particular the renewable energy projects listed in Tables IV.25-1 through IV.25-3. The upkeep and maintenance activities would cause dust emissions from vehicles or equipment that travel on unpaved surfaces and increase the use of portable equipment and motor vehicles that emit the products of fuel combustion. The population growth and urbanization highlighted in the general plan projections would also contribute to dust emissions during construction of the residential or commercial development and an increased use in fuel combustion and vehicle travel. This is

particularly true if the residential development is not in close proximity to urban job centers and requires an increase in vehicle miles traveled.

Emissions from renewable and nonrenewable sources could violate or contribute to an existing cumulative violation of air quality standards. The emissions caused by the cumulative projects would combine with the emissions from the renewable projects and transmission permitted under the DRECP over the life of the project, and would result in a cumulative impact due to long-term operations air emissions. Any cumulative project listed in Tables IV.25-1 through IV.25-4 would require environmental permitting and would likely incorporate mitigation measures to reduce the long-term air emissions.

Impact AQ-3: Operations would expose air quality sensitive receptors to adverse air pollutant concentrations.

All of the plan components from the renewable energy technologies and transmission permitted under the DRECP would result in exhaust emissions from vehicles and equipment, dust emissions from activity on unpaved surfaces, and in some cases new stationary or portable sources of emissions. During the site selection and project permitting processes, adverse health impacts can be avoided by controlling emissions and providing sufficient separation between new sources of air pollution and nearby receptors. Depending on the development sites, new emissions sources occurring with the renewable energy projects could be close enough to expose sensitive receptors to adverse air pollutant concentrations.

The areas available for renewable energy development under all alternatives surround multiple cities with residences, hospitals, and schools including Tehachapi, California City, Lancaster, Barstow, Adelanto, Victorville, Blythe, Calipatria, Brawley, Imperial, Holtville, El Centro, and Calexico. Areas along the transmission Outside the DRECP area would also be near cities with residences, hospitals, and schools. Because the specific renewable energy project sites are not known, sensitive receptors could experience adverse air pollutant concentrations.

The cumulative renewable projects listed in Tables IV.25-1 through IV.25-3 and potential renewable energy projects permitted under Phase II of the DRECP would result in exhaust emissions from vehicles and equipment, dust emissions from activity on unpaved surfaces, and in some cases new stationary or portable sources of emissions. Some of the projects listed in Tables IV.25-4 would also result in exhaust emissions from operations, such as the transmission lines and mining operations. The development projects listed in Table IV.25-4 and future anticipated development described in Section IV.25.2.2 would result both in increased emissions and in an increased number of sensitive receptors, such as those described for the Keystone Planning Decision/Rancho Los Lagos. Emissions from the cumulative list of projects could combine with those from projects permitted under the

DRECP to result in a cumulative impact on sensitive receptors. Mitigation would likely be required for these projects to reduce this effect.

Impact AQ-4: Operations would conflict with or obstruct implementation of applicable air quality plans.

All of the plan components from the renewable energy technologies and transmission permitted under the DRECP would result in project-related emissions that could conflict with applicable air quality plans in nonattainment areas if subsequent projects do not fully implement the control strategies of the applicable air quality management plan. The projects listed in Tables IV.25-1 through IV.25-4 3 and potential renewable energy projects permitted under Phase II of the DRECP would similarly conflict with applicable air quality plans in nonattainment areas if the projects do not fully implement the control strategies of the applicable air quality management plan. Mitigation required for each individual project would reduce the effects and there would be no cumulative impact on implementation of applicable air quality plans.

Impact AQ-5: Operations would create objectionable odors affecting a substantial number of people.

Geothermal technology permitted under the DRECP may result in objectionable odors. Geothermal technology is planned within DFAs in either the Owens River Valley or the Imperial Borrego Valley ecoregion subarea. Because a substantial number of people live in these areas, the geothermal development could create an air quality impact if people reside less than one mile from the odor sources. The local permitting authorities would consider the effects of objectionable odors. Although routine operations of geothermal facilities would need to include applicable odor controls, an air quality impact would occur if operations, accidental releases, or upset conditions would cause noticeable odors.

The geothermal projects listed in Table IV.25-1 and the geothermal development projected in the Imperial County General Plan could result in objectionable odors, similar to those discussed for the DRECP geothermal projects. Many of the projects would be located within the same known geothermal area near the Salton Sea. However, there are few existing geothermal projects and existing laws that limit objectionable odors regulate these projects. Other cumulative projects located in Imperial County such as industrial agriculture anticipated in the General Plan or the biofuel and biomethane facility would also result in odors but are located further from the geothermal development area. The renewable projects permitted under the DRECP are not expected to result in a cumulative impact.

IV.25.3.3 Meteorology and Climate Change

Increasing atmospheric levels of greenhouse gases (GHGs; primarily carbon dioxide, CO₂) are linked to global climate change (IPCC 2007; USGCRP 2009). The analysis presented in Chapter IV.3 for GHG effects is a cumulative assessment of GHG impacts, including the DRECP's incremental contribution to those impacts. Because climate change is a global effect, the cumulative geographic scope for this impact is the entire world.

Impact MC-1: Construction or operation of plan components would generate greenhouse gas emissions.

As discussed in Chapter IV.3, Meteorology and Climate Change, global GHG emissions are cumulatively significant. However, all of the DRECP alternatives would result in lower statewide GHG emissions compared to baseline levels by displacing fossil fuel electricity generation with renewable electricity.

Impact MC-2: Construction or operation of plan components would conflict with an applicable plan, policy, or regulation intended to address climate change.

Development of the Preferred Alternative or any of the other action alternatives in conjunction with the future foreseeable projects and projected growth and development would not result in a cumulative effect to conflicts with an applicable plan, policy, or regulation. Projects developed under any of the alternatives and projects presented in Tables IV.1-1, IV.1-2, and IV.1-3 and potential renewable energy projects permitted under Phase II of the DRECP would facilitate the GHG emissions reductions that California expects to achieve by generating electricity from renewable energy resources rather than fossil fuel technologies. This displacement of GHGs would be consistent with the Global Warming Solutions Act, AB 32, GHG reduction goals and the Climate Change Scoping Plan (see Volume III, Section III.3.1.2). In addition, the action alternatives would implement the DRECP, which facilitates renewable project approval while balancing conservation of California's desert natural resources in a manner consistent with Executive Order S 14 08.

Individual renewable energy projects would cause no other potential conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. The projects listed in Table IV.1-4 and the projected growth would not conflict with an applicable plan, policy, or regulation intended to address climate change because they would be required to comply with California's existing regulations. For example, much of the projected growth includes residential development. Prior to the construction of residential subdivisions, such projects would need to comply with California regulations and laws including those that pertain to climate change.

IV.25.3.4 Geology and Soils

The geographic area considered for cumulative effects related to soils and geologic hazards is within a 0.5-mile radius of the Development Focus Areas (DFAs) for the Preferred Alternative and for other alternatives for seismic events and erosion. This is because impacts resulting from seismic events and erosion are localized in nature and are unlikely to extend beyond the actual project boundaries unless an extreme event results in substantial downstream erosion. The geographic area considered for impacts to sand transport is the entire sand transport corridor in the Chuckwalla Valley.

Impact SG-1: Plan components would expose people or structures to injury or damage as a result of seismic, volcanic, or landslide activity.

As described in Chapter IV.4, over the lifetime of a renewable energy facility, earthquakes are likely within the DRECP area. The operation and maintenance of a facility would expose people and/or structures to seismic hazards, and a cumulative effect could occur if another project within a 0.5-mile radius would also expose people and/or structures to seismic hazards. While not all the projects listed in Tables IV.25-1 through IV.25-4 are located within the DFAs, a number of the projects are. For example, Blythe Solar Power Project, Desert Harvest Solar Farm, Desert Sunlight Solar Farm, FSE Blythe 1, Genesis NextEra, McCoy Solar Energy Project, Palen Solar Power Project, Palo Verde Mesa, EDF (McCoy), and the Devers-Palo Verde #2 transmission line are all within or near the DFAs in the Cadiz Valley and Chocolate Mountain ecoregion subarea and would all be susceptible to similar risks from seismic events. As noted in the Desert Center Area Plan, there would also be potential for future expansion of residential, commercial, recreational, and tourist-oriented uses in the Desert Center region. While none of the projects listed in this area would include occupied residential structures, damage to property could be considerable and could impact nearby residences or future residences in the Desert Center area resulting in a cumulative impact.

Mitigation measures would likely be required for the cumulative projects and would reduce the effects by likely requiring geotechnical investigations and reducing the effects of ground shaking. Similar cumulative impacts could occur at other DFAs where they are adjacent to or within 0.5 miles of cumulative projects as listed in Tables IV.25-1 through IV.25-4. In particular, the cumulative impacts could occur in the DFAs in Cadiz Valley, Pinto Lucerne Valley, and West Mojave and Eastern Slopes.

Alternatives 1, 3, and 4 have fewer acres of DFAs in these regions but would still have a large amount of generation allocated to these DFAs. As a result, there would be a slightly greater likelihood that the renewable energy facilities would be located within 0.5 miles of

the cumulative projects listed in Tables IV.25-1 through IV.25-4 and therefore could result in a cumulative impact.

Impact SG-2: Soil or sand erosion would be triggered or accelerated due to plan components.

Erosion. The Preferred Alternative together with other past, present, and reasonably foreseeable projects listed in Tables IV.25-1 through IV.25-4 and potential renewable energy projects permitted under Phase II of the DRECP have the potential to have adverse cumulative effects related to soil erosion. Any disturbance to surface soils could expose soils to the effects of wind and water. Additional impervious surfaces associated with population growth and additional urban or suburban centers could increase soil erosions due to increased water flow. Activities including grading, compaction, drilling, backfilling, and driving on unpaved roadways could disturb soils at any work site, regardless of the type of project. There could potentially be cumulatively additive effects related to wind and water erosion for projects that are in very close proximity and undergoing ground-disturbing activities at the same time.

While many of the projects listed in Tables IV.25-1 through IV.25-4 would likely have finished construction prior to the start of construction for a renewable energy facility permitted under the DRECP, some may not have. For example, the California High-Speed Rail goes through DFAs in the West Mojave and Eastern Slopes ecoregion subarea and is currently under construction from Fresno to Bakersfield. However, the High-Speed Rail segment from Bakersfield to the San Fernando Valley, also part of the initial operating section, would not be built until later this decade with the first operating section anticipated to begin service in 2022. Because of the long construction time frame for this project, it could overlap with construction of renewable energy facilities permitted under the DRECP and result in cumulative erosion impacts. Potential renewable energy projects permitted under Phase II of the DRECP could also combine with projects constructed on BLM-administered land. In addition, as highlighted in the county General Plans, population growth and resulting residential and other infrastructure are projected out until 2040 in some areas that overlap with DFAs. If residential development is sited adjacent to renewable facilities such as in the Imperial County townsites, this would result in an adverse cumulative effect. Mitigation measures would likely require projects to prepare an erosion control plan and would reduce the cumulative effect.

Sand Transport. Under the No Action Alternative, the Preferred Alternative and Alternatives 2, 3, and 4, DFAs in Eastern Riverside County are located on or near an important sand transport corridor. Alternative 1 DFAs are also near an important sand transport corridor but would avoid many of the main corridor locations so would contribute less to this impact. The Palen Solar Power Project, BrightSource Sonoran West

Project, Devers-Palo Verde No. 2 transmission line, and many generator tie-lines (gen-tie lines) from renewable projects in Eastern Riverside County would also be located in the sand transport corridor. The Palen Solar Power Project would directly impact 1,160 acres of the sand transport corridor (CEC 2013b). The area of the sand transport corridor that would be affected by the Desert Quartzite Solar Project and BrightSource Sonoran West Project is unknown, but the much of the projects are within this corridor. Fencing could impede sand transport and affect valuable habitat within this corridor, resulting in a cumulative blocking of the corridor. CMAs would reduce the effects of each individual renewable project permitted under the DRECP to the extent practicable. The Palen and Devers-Palo Verde projects also included mitigation to reduce this impact and Desert Quartzite Solar and Sonoran West would likely require similar mitigation.

Impact SG-3: Plan components would expose structures to damage from corrosive or expansive soils.

Expansive and corrosive soils could damage renewable energy facilities in DFAs as discussed in Chapter IV.4. Many existing and proposed projects are in Eastern Riverside County, the Imperial Valley, West Mojave, and the Pinto Lucerne Valley that are located in or near DFAs. Similarly, population growth projected in county plans would likely require additional residential and other construction. Some communities, such as the Tehachapi Mountain communities, have projected growth of 50% to 60% and would likely overlap with DFAs. Past and future projects listed in Tables IV.25-1 through IV.25-4 located in close proximity to renewable energy structures in DFAs on the same soil types would be exposed to the same conditions and therefore the same impacts. Collapse of project structures and adjacent structures would combine to result in a cumulative impact where such structures are in close proximity to other structures or people, such as the residential and commercial developments. Residential and commercial development, and the existing and future renewable projects listed in Tables IV.1-1 through IV.1-3, or other projects listed in Table IV.1-4 would require mitigation measures to complete geotechnical studies and appropriate engineering to withstand the soil conditions and would reduce the cumulative effects.

Impact SG-4: Plan components would destroy or disturb desert pavement.

Renewable energy facilities permitted under the DRECP may cause damage to desert pavement. Excavation and grading for renewable energy facilities would be similar for the construction of most cumulative projects listed in Tables IV.25-1 through IV.25-4 and future renewable energy projects permitted under Phase II. Where the projects damage desert pavement in the same area as the DFAs, they would result in a cumulative impact on desert pavement. Specific locations of desert pavement have not been mapped for the DRECP and would require field surveys within the DFAs. As such, the exact locations of the potential cumulative impacts are unknown, although some existing projects are known to

affect areas of desert pavement, for example as the Sunrise Powerlink Transmission Project. Mitigation measures, such as protecting and restoring desert pavement, would likely be required for the cumulative projects similar to the Sunrise Powerlink Project reducing the cumulative impact.

IV.25.3.5 Flood, Hydrology, and Drainage Areas

The cumulative geographic scope for flood, hydrology, and drainage areas is the entire LUPA Decision Area and transmission corridors outside the DRECP area.

Impact FH-1: Plan components could substantially alter existing drainage patterns and increase the risk of flooding on or off site.

Renewable energy and transmission projects permitted under the DRECP could alter drainage patterns by changing the existing drainage pattern of the site or area through grading or channelization, resulting in concentrated stormwater flow patterns that increase the potential for erosion, sediment transport, and flooding effects compared to the natural diffused or distributary stormwater flow patterns. In addition, these effects could increase the rate or amount of surface runoff by ground disturbance and treatments that make the ground less pervious and diminish the physical and biological crusts, thereby increasing vulnerability to erosion. Renewable energy projects could also create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Development permitted under each DRECP alternative would be within the 100-year floodplain. Each alternative would include development that would occupy between 1% and 2% of the DFAs 100-year floodplain area. Potential activity within the 100-year floodplain indicates the potential adverse effects from development that can lead to substantially altering drainage patterns and increasing the risk of flooding. It is important to recognize that overall, 66% of the DRECP area has not been assessed for flood potential, suggesting that development within the 100-year floodplain could occupy more than anticipated.

Some of the projects listed in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP would be located within the 100-year floodplain and result in altering drainage patterns and increased risk of flooding. Existing renewable projects, such as the Genesis NextEra project have experienced impacts due to flooding during the limited time they have been under construction. The impacts of the projects listed in Tables IV.25-1 through IV.25-4 would combine with the renewable energy projects permitted under the DRECP to result in cumulative impact on drainage patterns and increased risk of on-site and off-site flooding. Mitigation for individual projects would likely require development and implementation of an erosion and sedimentation plan

including site drainage, erosion, and sedimentation, hydrology studies, and avoidance of impacts to surface water resources that would reduce the cumulative impacts.

Impact FH-2: Plan components could alter hydrologic processes and water-dependent resources of surface water features.

Land disturbance activities associated with renewable energy development permitted under the DRECP includes clearing, grading, excavation, road construction, vegetation removal, fencing, and drainage and flood control structures. These activities have the potential to disrupt drainage patterns, particularly of ephemeral stream channels. Considering the large area of most renewable energy developments, it is likely that ephemeral and intermittent streams will flow through a proposed project area in its existing condition and such drainage paths and patterns will be altered. Land disturbance can also alter the course of a stream or river, or change its flow rates and frequencies, causing variations to associated morphological and ecological processes and affecting vegetation and animal species. While only a small portion of the linear and areal (area) surface water resources would be impacted by renewable energy development, the impacts to such features may be underestimated because the available data considers only the centerline lengths rather than the areal extent of these features.

The projects listed in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP would have similar land disturbing activities as described for the DRECP renewable energy projects and would result in the potential to disturb drainage paths and patterns. Because a number of the projects are located in the DFAs, they could combine with projects permitted under the DRECP to result in a larger impact on the same drainage paths and patterns. This is especially the case where projects are located in close proximity or back to back with each other as would be the case with the Desert Sunlight and Desert Harvest projects, or with the Blythe Solar Power Project and the McCoy Solar Project, or on future DFAs on private land adjacent to DFAs on public land. In some ecoregion subareas, the projects listed in Tables IV.25-1 through IV.25-4 would only result in a cumulative impact with the No Action Alternative. For example, the Ivanpah Solar Electric Generating System (SEGS) and Stateline Solar Project would be located in an area available for renewable energy development under the No Action Alternative, but not for renewable energy development under the action alternatives.

Typical mitigation for the cumulative project would require hydrologic studies, avoidance and minimizations of impacts to surface water resources, site characterization, siting, design, and operations and maintenance monitoring of water quantity and quality, and would reduce the cumulative impacts.

Impact FH-3: Plan components could result in accidental releases of contaminants resulting in degradation of water quality.

Renewable energy and transmission permitted under the DRECP would use hazardous materials and generate hazardous wastes, particularly oil-based and liquid chemical products. If hazardous materials and wastes are not properly handled and contained, they can spill and cause contamination to soils, surface water bodies, and groundwater.

The projects listed in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP would also require use of hazardous materials and hazardous wastes that could spill and cause contamination to soils, surface water bodies, and groundwater. Some cumulative projects listed in tables, such as the proposed Palen Solar Power Project, Genesis Solar Power Project, or Blythe Solar Power Project could also result in spills and contamination and are located within a DFA. However, cumulative impacts are unlikely because the DRECP renewable energy projects would need to be located adjacent to the cumulative projects and the accidental releases would need to occur at the same time. Typical mitigation such as control of site drainage, erosion and sedimentation, avoidance of impacts to surface water resources, monitoring of water quantity and quality, and waste discharge requirements would further reduce this likelihood of the effect.

IV.25.3.6 Groundwater, Water Supply, and Water Quality

The geographic scope for groundwater, water supply, and water quality would be each individual groundwater basin within the LUPA Decision Area. Projects within the surface recharge area of a groundwater basin or pumping water from the same groundwater basin could combine to result in cumulative effects.

Impact GW-1: Construction of Plan components could alter groundwater recharge.

Renewable energy facilities permitted under the DRECP could influence the quantity and timing of groundwater recharge because construction would include grading the land surface, removing vegetation, altering the conveyance and control of runoff and floods, or covering the land with impervious surfaces that alter the relationships between rainfall, runoff, infiltration and transpiration (see Chapter IV.6, Section IV.6.3). Solar energy would result in the largest amount of grading so it would have the largest impact on groundwater recharge among the renewable technologies permitted under the DRECP. The projects listed in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP would similarly grade the land surface. Population growth and anticipated development summarized in Section IV.25.2.2 would similarly result in grading and a much larger amount of impervious surfaces due to residential and commercial

development and greater asphalted areas. This would result in a cumulative impact on groundwater recharge. Mitigation measures could require installing pervious groundwater cover to improve percolation and direct drainage. Residential development would also be required to reduce runoff and direct drainage to comply with laws and regulations.

Impact GW-2: Groundwater pumping and consumption lowers groundwater levels, depletes water supplies, and affects groundwater discharge.

As described in Section IV.6.3, if local groundwater is the source of water to renewable energy facilities permitted by the DRECP, its extraction by wells will cause drawdown of groundwater levels. This drawdown increases with time and decreases with distance from the wells. The greatest potential water use varies by alternative and by technology. Geothermal technology has the greatest water use and require substantially more water than solar technologies that can use dry cooling technologies. For the Preferred Alternative, the greatest water use occurs within the Imperial Borrego Valley, with the second largest potential water use in Owens River Valley followed by the Cadiz Valley and Chocolate Mountains ecoregion subareas. For Alternative 1, the greatest potential water use occurs within the Imperial Borrego Valley, followed by Cadiz Valley and Chocolate Mountains and Owens River Valley. For Alternatives 2, 3, and 4, the water use profile would be very similar to the Preferred Alternative. The No Action Alternative potential groundwater use is spread among more ecoregion subareas than the other alternatives.

The cumulative projects listed in Table IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP would also likely use local groundwater as the source of water for construction and operations. These projects are concentrated primarily in the same three ecoregion subareas, Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains, although many cumulative projects are also in the Pinto Lucerne Valley. Some projects, such as the Eagle Mountain Pumped Storage Facility could use large amounts of groundwater and would continue using large amounts of groundwater during the life of the projects. Other projects, such as the Canenergy Rockwood Project and the Sugarcane and Sweet Sorghum-to-Ethanol Electricity and Bio-Methane Facility would likely require large amounts of water for the agriculture production but would likely get the water from the Imperial Irrigation District, which closely regulates the amount of water provided to users in the Imperial Valley. Impacts will be constrained by the limited availability of water rights and via oversight by state and local water authorities, similar to the Water Supply Assessments required for projects permitted under the DRECP. However, pressure on water supplies will continue to grow from multiple demands. In addition, several of the habitat management actions carried out by land managers are dependent on groundwater such as the maintenance of Outstanding and Remarkable Values within eligible and designated Wild and Scenic Rivers.

Future residential development summarized in Section IV.25.2.2 would also use a large amount of groundwater continuously. The use of groundwater for the renewable energy facilities permitted under the DRECP would combine with the use of groundwater for the cumulative projects and the projected development to result in a cumulative lowering of groundwater levels affecting basin water supplies and groundwater discharge. Mitigation such as quantifying and monitoring groundwater level changes and taking corrective actions would reduce the effects. For projects such as the Eagle Mountain Pumped Storage Facility, mitigation would require monitoring of groundwater levels and monitoring nearby wells. Such mitigation would reduce effects to the extent practicable but because the groundwater basin is in overdraft and because of the large cumulative water use within the groundwater basin, the impacts remained cumulatively adverse (SWRCB 2013).

Impact GW-3: Groundwater consumption could cause land subsidence and permanently decrease storage capacity.

The renewable energy facilities permitted under the DRECP would use groundwater during construction and operations resulting in potential groundwater level decline and causing compressions as described in Section IV.6.1.1.1. Geothermal wells extract fluids from geologic strata typically thousands of feet deeper than the overlying aquifers but this can also lower the fluid pressure causing compression. The compression reduces the volume of the sediment beds and lowers land surface elevations, which can damage existing structures, roads, and pipelines; reverse flow in sanitary sewer systems and water delivery canals; and alter the magnitude and extent of flooding along creeks and lakes. This compression of the clay beds also represents a permanent reduction in storage capacity.

Many of the projects listed in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP would similarly contribute to use of groundwater and result in compression resulting in a cumulative impact. Population growth anticipated within the DRECP area and along the transmission corridors would also contribute to groundwater use and subsequent subsidence. This is particularly true in areas (i.e., Imperial Borrego Valley) that are already subject to subsidence and where the majority of the wells are domestic wells using an estimated few thousand acre-feet per year (SWRCB 2006). To reduce this cumulative impact, mitigation would likely require a subsidence monitoring and reporting plan and actions to take if subsidence were to occur for the projects permitted under the DRECP. Similar mitigation measures would likely also be required for the list of projects identified in Tables IV.25-1 through IV.25-4.

Impact GW-4: Groundwater consumption could cause existing poor-quality groundwater to migrate.

As noted in Section IV.6.2, the projects permitted under the DRECP could cause water-level declines that cause highly saline areas of groundwater basins to migrate into surrounding parts of the basin and render groundwater unusable in the affected areas. The cumulative projects listed in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP could also cause water-level declines in the same groundwater basins and contribute to the migration of the saline areas of groundwater basins, resulting in a cumulative impact. To reduce the impacts from the projects, Mitigation measures would likely require an action plan if water quality thresholds are reached including restrictions on water use and compensation to adjacent landowners.

Impact GW-5: Injection of water for geothermal steam generation could contaminate potable water supplies.

Saline water injected for steam generation during geothermal project operations creates a risk should the injection well casing corrode, potentially leading to a leak that injects brine into a relatively shallow water supply aquifer. The cumulative list of projects includes few geothermal projects other than in Imperial Valley. The Imperial County General Plan and specific plans also include geothermal development as a projected future activity in this region. Each geothermal project is closely reviewed and monitored by the California Division of Oil and Gas and Geothermal Resources and required to implement best management practices. Therefore, there would be no cumulative impact.

Impact GW-6: Chemical spills or brine disposal could contaminate groundwater.

Renewable energy facilities permitted under the DRECP could produce or use fluids that would contaminate groundwater if they leaked into an aquifer. Such fluids include vehicle fuels, solvents for equipment maintenance, brines produced by demineralization, and brines produced from geothermal extraction wells. Improper handling or containment of hazardous materials associated with transmission facility electrical equipment located inside and outside the DRECP area could disperse contaminants to soil or groundwater. Cumulative projects listed in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP could also produce fluids that would contaminate ground if leaked. Projects listed in Table IV.25-4, while not renewable energy, these projects would likely require vehicle fuels and solvents during construction or maintenance. The large amount of acreage disturbed by the renewable energy facilities and the cumulative projects could cause groundwater contamination from chemical spills or brine disposal. For a cumulative effect, the spills would need to occur at the same time and in proximity to each other. This is unlikely given the best management practices required

for any project that uses chemicals. Therefore, the risk of cumulative spills occurring at the same time and in close proximity is minimal.

IV.25.3.7 Biological Resources

Under all alternatives, renewable energy development activities proposed within the DRECP Plan area would be required to conform to federal, state, and local laws and regulations that protect biological resources, such as, but not limited to: Endangered Species Act, Clean Water Act, Clean Air Act, Migratory Bird Treaty Act, Eagle Act, California Endangered Species Act, California Fish and Game Code (1600–1616), Porter-Cologne Water Quality Act, Native Plant Protection Act, and local authorities and administering agencies.

For most species addressed within the Proposed LUPA and Final EIS, the geographic range of the species would be the DRECP Plan area. For a few species, such as the condor, the cumulative geographic range would be larger due to their larger habitat. In particular, the California condor habitat includes ranges surrounding southern San Joaquin Valley, the Transverse Ranges, Tehachapi Mountains, and southern Sierra Nevada. The cumulative geographic range for the DRECP Plan area is the Southern California population because condors from other populations are not expected to use the habitat within the DRECP Plan area. Section IV.25.2.2.2, Cumulative Projections, describes the type of development occurring in the Southern California population. For golden eagles, the cumulative scale of analysis is a 140-mile radius around the DRECP Plan area (see Appendix H, Process to Calculate Available Take).

Cumulative Impacts of the No Action Alternative

The construction of cumulative projects listed in Tables IV.25-1 through IV.25-4 would result in renewable energy, transmission, and other development under the No Action Alternative. These projects under the No Action Alternative would result in the continuation of existing project-by-project analysis and mitigation measures, including BMPs and use restrictions through compliance with federal, state, and local regulations.

Under the No Action Alternative, existing laws and regulations would not require compensation for all loss of vegetation types in the DRECP Plan Area. Typical mitigation measures would not be expected to offset the magnitude and extent of all the impacts to vegetation types, and listed and sensitive plants and wildlife species, and bird and bat species. Project-by-project mitigation would not likely achieve large blocks of contiguous habitat in a connected system of conservation lands across the DRECP Plan area and would lack the inter-agency, coordinated management and monitoring of habitat lands for these species.

The lack of a comprehensive and integrated conservation land system and LUPA-wide implementation of supplemental mitigation in the form of bird and bat conservation plans would lead to cumulative impacts to vegetation types, wildlife and plant species, and sensitive biological resources. The implementation of mitigation measures and BMPs as well as use restrictions, compensation, and compliance with federal, state, and local regulations for the protection of vegetation types would reduce impacts. However, a lack of enough available private land with habitat, and fragmentation of mitigation land through piecemeal efforts would also reduce the effectiveness of such approaches and contribute to cumulative effects on vegetation types, wildlife and plant species, and sensitive biological resources.

The No Action Alternative would result in the following potential impacts from renewable energy and transmission development.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Renewable energy development under the No Action Alternative would potentially result in adverse impacts to approximately 1% of vegetation types overall, as described in Chapter IV.7.3, Biological Resources, impacts of the No Action Alternative. The majority of impacts would occur in the lower bajada and fan Mojavean-Sonoran desert scrub vegetation type. Approximately 67,000 acres (of the 101,000 acres of potential impact area within BLM-managed lands) of desert scrubs would be impacted under the No Action Alternative. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains and Kingston and Funeral Mountains subareas, but there would also be substantial impacts in the Providence and Bullion Mountains, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas. Impacts to this vegetation may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

The cumulative projects listed in Tables IV.25-1 through IV.25-4 would create land disturbance and would combine to result in cumulative impacts to biological resources under the No Action Alternative. These projects would not include implementation of the conservation land designations or biological resources CMAs. The majority of reasonably foreseeable renewable energy projects located within ecoregion subareas would require mitigation, minimization, and avoidance measures to reduce impacts to vegetation types. These measures, along with resource protection area acquisitions, would reduce the cumulative effect to native vegetation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Under the No Action Alternative, impacts to riparian and wetland vegetation is not prohibited by existing federal laws and regulations, but impacts to riparian and wetland vegetation identified as jurisdictional waters and wetlands would be regulated by existing federal laws and regulations. Approximately 6,000 acres of riparian vegetation and approximately 4,000 acres of wetland vegetation would be impacted under the No Action Alternative. The largest contributor to wetlands in the Plan Area is the open water of the Salton Sea, located within the Imperial Borrego Valley ecoregion subarea. Major rivers occur within the DRECP Plan Area. Potential impacts to major rivers under the No Action Alternative have the potential to occur to the Amargosa, Colorado, and Mojave Rivers. Impacts to major rivers would be adverse absent implementation of avoidance measures.

The reasonably foreseeable actions described in Tables IV-25-1 through IV.25-4 and other ongoing activities, would result in cumulative effects to jurisdictional waters and wetlands. The majority of reasonably foreseeable renewable energy projects located within ecoregion subareas would require mitigation, minimization, and avoidance measures to reduce impacts to jurisdictional waters and wetlands. These measures, along with the projects and plans for conservation of the Salton Sea, and measures to protect jurisdictional waters and wetlands within the DRECP Plan Area, would reduce cumulative impacts.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Under the No Action Alternative, siting, construction, and operations of renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns. Therefore, the impacts from renewable energy development, including vegetation degradation from dust, dust suppressants, fire, fire management, and invasive plants, could occur anywhere not prohibited from this development. These impacts would mostly occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas, which would experience most of terrestrial operational impacts. As a result, these subareas would have the greatest potential to result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. Vegetation degradation as a result of renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

The reasonably foreseeable actions described in Tables IV.25-1 through IV.25-4 would result in cumulative effects from the creation of dust, use of dust suppressants, exposure to

fire, implementation of fire management techniques, and the introduction of invasive plants. The majority of reasonably foreseeable renewable energy projects within ecoregion subareas would require mitigation, minimization, and avoidance measures to reduce impacts to vegetation. These measures would reduce cumulative effects to vegetation.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Under the No Action Alternative, the majority of the impacts to plant and wildlife species and their habitat would occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains and Providence and Bullion Mountains subareas (see Table IV.7-3, Chapter IV.7, Section IV.7.3.1, impact analysis for Focus Species habitat). Impacts to plant and wildlife species and their habitat would be adverse and would require implementation of avoidance, minimization, and compensation measures to offset these impacts consistent with existing applicable laws and regulations.

For Agassiz's desert tortoise, approximately 50,000 acres of desert tortoise important areas may be impacts. Existing federal laws and regulations would require avoidance, minimization, and compensation for impacts to this federal listed species on BLM-administered lands that would likely reduce the impacts reported; however, these impacts to desert tortoise important areas would be adverse and would require mitigation.

Renewable energy and transmission impacts could occur within 4 miles of 103 golden eagle territories, and the use areas of these territories could be impacted by renewable energy and transmission development depending on the siting of specific projects. Existing laws and regulations would require avoidance, minimization, and compensation for any take of golden eagles.

Under the No Action Alternative, approximately 16,000 acres of bighorn sheep mountain habitat and 16,000 acres of intermountain habitat would be impacted. Existing federal regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species.

The No Action Alternative would result in 5,000 acres of Mojave ground squirrel important areas. Existing federal regulations would require avoidance, minimization, and compensation for impacts to this BLM sensitive species that would likely reduce the impacts reported here; however, these impacts to Mohave ground squirrel would be adverse and would require mitigation.

The reasonably foreseeable actions described in Tables IV-25-1 through IV.25-4 and other ongoing activities would result in cumulative effects to Focus Species and Non-

Focus BLM Special Status Species. It is anticipated that all reasonably foreseeable actions would be subject to further review and evaluation in compliance with federal, state, and local regulations, and that additional mitigation measures would be imposed on these projects as a result of the approval process. These measures would reduce cumulative impacts to Focus Species and Non-Focus BLM Special Status Species.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act).

Under the No Action Alternative, siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act. The potential loss of nesting birds resulting from these activities would be adverse without application of avoidance and minimization measures. Under existing laws and regulations, renewable energy and transmission projects would be required to implement seasonal restrictions and other avoidance measures including pre-construction nesting bird surveys and impact setbacks determined necessary to avoid and minimize the loss of nesting birds.

The reasonably foreseeable actions described in Tables IV-25-1 through IV.25-4 other ongoing activities would result in cumulative effects to nesting and migratory birds. It is anticipated that all reasonably foreseeable actions would be subject to further review and evaluation in compliance with federal, state, and local regulations, and that additional mitigation measures would be imposed on these projects as a result of the approval process. These measures would reduce cumulative effects to nesting and migratory birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Under the No Action Alternative, impacts to Desert Linkage Network habitat linkages would be adverse and would require mitigation to avoid impacting habitat linkage function in the subareas where impacts are anticipated.

Adverse impacts to migratory bird populations would require each project to implement surveying and siting as well as minimization measures to ensure reduction and avoidance of migratory birds and associated resources. Further compensation measures may be necessary to offset adverse effects and would be implemented on a project-by-project basis. Application of avoidance and minimization measures would reduce the overall impacts to migratory bird populations. Additional steps would be necessary to ensure

projects do not adversely impact migratory birds within the DRECP Plan Area. After application of the mitigation measures, operational impacts on migratory birds from the No Action Alternative would be adverse and would require mitigation.

The reasonably foreseeable actions described in Tables IV-25-1 through IV.25-4 and other ongoing activities would result in cumulative effects to habitat linkages and wildlife movement corridors. It is anticipated that all reasonably foreseeable actions would be subject to further review and evaluation in compliance with federal, state, and local regulations, and that additional mitigation measures would be imposed on these projects as a result of the approval process. These measures would reduce cumulative effects to habitat linkages and wildlife movement corridors.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

Under the No Action Alternative, renewable energy development would not be confined to DFAs and fragmentation and population isolation effects could occur anywhere renewable energy development is not prohibited and is assumed to be distributed in a pattern that follows past and current patterns. Approximately 66% of the area available to renewable energy development under the No Action Alternative is characterized by moderately high terrestrial intactness to high terrestrial intactness. Siting and construction of renewable energy and transmission in these intact areas would result in adverse habitat fragmentation and population isolation effects.

The reasonably foreseeable actions described in Tables IV-25-1 through IV.25-4 and other ongoing activities would result in cumulative effects to habitat fragmentation and population isolation. The majority of reasonably foreseeable renewable energy projects and large projects would require mitigation, minimization, and avoidance measures to reduce impacts. These measures would reduce cumulative effects to habitat fragmentation and population isolation.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Under the No Action Alternative, renewable energy and transmission activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Focus Species and Non-Focus BLM Special Status Species. Typical management practices under the No Action Alternative would include the development of a common raven control plan that would reduce project activities that increase predator subsidization, including: removal of trash and organic

waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The reasonably foreseeable actions described in Tables IV-25-1 through IV.25-5 and other ongoing activities would result in cumulative effects from predation. The majority of reasonably foreseeable renewable energy projects and large projects located within ecoregion subareas would require mitigation, minimization, and avoidance measures to reduce impacts to vegetation. These measures would reduce cumulative impacts related to predation.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The No Action Alternative would result in an increase in operations-related impacts to Focus Species and Non-Focus BLM Special Status Species, primarily to avian and bat species from wind turbines, solar facilities, and transmission facilities in the DRECP Plan Area. Operational impacts would result in take of Focus Species. Under the No Action Alternative, projects would be analyzed on a case-by-case basis and preparation and implementation of plans that detail avoidance, minimization, and compensation measures, are expected to address and offset collision impacts.

The reasonably foreseeable actions described in Tables IV-25-1 through IV.25-4 and other ongoing activities would result in considerable cumulative effects from collisions. The majority of reasonably foreseeable renewable energy projects and large projects would require mitigation, minimization, and avoidance measures to reduce impacts to avian species and bats. These measures would reduce cumulative effects to avian species and bats.

Impacts of Ecological and Cultural Conservation and Recreation Designations

Under the No Action Alternative there would be continued protection and management of existing conservation areas (e.g., Wilderness areas, National and State Parks, etc.) and existing BLM land designation areas on BLM-administered lands. Protection and management of existing conservation areas would also provide protections to native vegetation and wildlife species, including Focus Species and Non-Focus BLM Special Status Species.

Recreation designations provide guidance for recreational management and formalize existing recreational use; these designations do not create additional areas for recreation or modify recreational routes or access. Therefore, these designations were not considered to result in adverse impacts to biological resources.

Cumulative Impacts of the Action Alternatives

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Proposed DFAs for renewable energy development activities under the Proposed LUPA action alternatives would potentially result in adverse impacts to less than 1% of vegetation types overall, as described in Chapter IV.7, Biological Resources. The majority of impacts would occur within Desert Scrub vegetation (about 64% of impacts, approximately 52,000 acres), but impacts to desert scrubs would be widely distributed. The desert scrub vegetation type provides habitat for a large number of the Focus Species habitat (as detailed in Chapter IV.7 Section IV.7.3.2). Impacts to this vegetation type may have an adverse effect on these species by removing or degrading suitable habitat.

The adverse effects of the loss of native vegetation would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of renewable energy development activities. These CMAs would contribute to the overall conservation strategy, which includes conservation within BLM land designations. Overall, approximately 83% of native vegetation types would be located within BLM land designations under the Preferred Alternative (see Table IV.7-72). The other alternatives would also have similarly high percentages of the BLM land designations that would protect native vegetation. Implementation of the CMAs as part of the overall conservation strategy would reduce the adverse effects from the loss of native vegetation resulting from renewable energy development activities within DFAs for all the action alternatives. Overall, the proposed action alternatives contribution to cumulative effects would be reduced with implementation of proposed BLM land designations and CMAs.

Within the DRECP Plan Area, approximately 84,000 acres of renewable energy projects are operational, under construction, and approved (see Table IV.25-1). An additional 22,000 acres of renewable energy projects are under review (see Table IV.25-2). Other large include transmission lines, a high speed rail line, a new 63-mile freeway corridor, and the California State Parks 28,275-acre resource protection acquisition area (see Table IV.25-4).

The cumulative projects listed in Tables IV.25-1 through IV.25-4 would create land disturbance and would combine to result in cumulative impacts to biological resources. These projects, without the DRECP Proposed LUPA, would not include designation of proposed BLM land designations or biological resources CMAs. The majority of reasonably foreseeable renewable energy projects and large projects located within the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes ecoregion subareas would require mitigation, minimization, and avoidance measures to reduce

impacts to native vegetation. These measures, along with conservation within proposed BLM land designations and biological resource CMAs, would reduce the cumulative effect to native vegetation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Proposed DFAs for renewable energy development activities under the DRECP Proposed LUPA would potentially result in adverse impacts to approximately 1% of wetland areas within the DRECP Plan Area. The largest contributor to wetlands in the DRECP Plan Area is the open water of the Salton Sea, located within the Imperial Borrego Valley ecoregion subarea. Action alternatives may also potentially impact seeps and springs. All major rivers within the DRECP Plan Area would be avoided and no direct impacts would occur, however indirect effects could occur through altered ground water hydrology.

The action alternatives would result in minor adverse impacts to jurisdictional waters and wetlands within the DRECP Plan Area. Any adverse effects to jurisdictional waters and wetlands would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of renewable energy development activities. These CMAs would contribute to the overall conservation strategy, which includes conservation within BLM land designations. The majority (greater than 80%) of jurisdictional waters and wetlands would be located within existing conservation lands, National Landscape Conservation System (NLCS), ACECs, and wildlife allocations. Implementation of the CMAs as part of the overall conservation strategy would reduce any adverse effects to jurisdictional waters and wetlands. Overall, the proposed action alternatives contribution to cumulative effects would be reduced with implementation of proposed BLM land designations and CMAs.

The reasonably foreseeable actions described in Tables IV-25-1 through IV.25-4 and other ongoing activities would result in cumulative effects to jurisdictional waters and wetlands. The Salton Sea area, located within the Imperial Borrego Valley ecoregion subarea, is the largest wetland within the DRECP Plan Area that may be impacted. Within this ecoregion subarea, approximately 30,000 acres of renewable energy projects are operational, under construction, and approved (see Table IV.25-1). An additional approximately 14,000 acres of renewable energy projects are under review (see Table IV.25-2). However, many of these projects are at a substantial distance from the Salton Sea and have minimal, if any, impacts to jurisdictional waters and wetlands. Other large projects within this ecoregion subarea that occur near the Salton Sea are the Salton Sea Landfill Expansion Project (284 acres), Salton Sea Species Conservation Habitat Project (3,770 acres), and the Sonny Bono Salton Sea Comprehensive Conservation Plan (see Table IV.25-4).

The majority of reasonably foreseeable renewable energy projects and large projects located within the Imperial Borrego Valley ecoregion subarea would require mitigation, minimization, and avoidance measures to reduce impacts to jurisdictional waters and wetlands or are themselves habitat protection plans. These measures, along with the projects and plans for conservation of the Salton Sea as well as all jurisdictional waters and wetlands within the DRECP Plan Area, would reduce cumulative impacts.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Proposed siting, construction, decommissioning, and operational renewable energy development activities under the DRECP Proposed LUPA action alternatives would result in the degradation of vegetation through the creation of dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The action alternatives would allow the siting of renewable energy development within no more than 10% of the available lands in the DRECP Plan Area (within DFAs). Of which, siting and construction of renewable energy development would affect less than 1% of the available lands in the DRECP Plan Area. These impacts would primarily occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and the Pinto Lucerne Valley and Eastern Slopes ecoregion subareas.

Any adverse effects from the creation of dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants would be avoided and minimized through the implementation of avoidance and minimization CMAs. These CMAs would contribute to the overall conservation strategy, which includes conservation within BLM land designations. The majority (greater than 80%) of vegetation communities would be located within existing conservation lands, NLCS, ACECs, and wildlife allocations. Implementation of the CMAs as part of the overall conservation strategy would reduce any adverse effects from the creation of dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. Overall, the proposed action alternatives are not expected to contribute to cumulative effects with implementation of proposed BLM land designations and CMAs.

The reasonably foreseeable actions described in Tables IV.25-1 through IV.25-4 and other ongoing activities would result in cumulative effects from the creation of dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. Approximately 115,000 acres of renewable energy projects are operational, under construction, and approved (see Table IV.25-1). An additional approximately 32,000 acres of renewable energy projects are under review (see Table

IV.25-2). Other large projects within these ecoregion subareas include transmission lines, recreation area plans, mining projects, a high speed rail line, a 63-mile freeway corridor, biofuel projects (45,500 acres), the Eagle Mountain Storage Facility (2,220 acres), and habitat conservation projects (California State Parks 28,275-acre resource protection acquisition area, Salton Sea Species Conservation Habitat Project on 3,770 acres, and the Sonny Bono Salton Sea Comprehensive Plan) (see Table IV.25-4). The majority of reasonably foreseeable renewable energy projects and large projects located within these ecoregion subareas would require mitigation, minimization, and avoidance measures to reduce impacts to native vegetation. CMAs would reduce cumulative effects to vegetation.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Proposed renewable energy development activities under the DRECP Proposed LUPA action alternatives would potentially result in adverse impacts to Focus Species and Non-Focus BLM Special Status Species (direct and indirect impacts to individuals and habitat), as described in Chapter IV.7, Biological Resources. For the majority of Focus Species (75%), less than 1% of modeled habitat would occur within DFAs, as shown in Table IV.25-5. Of the remaining 25% of Focus Species, no more than 8% of modeled habitat (mostly less than 5%) would occur within DFAs. The majority of impacts to Focus and Non-focus Species would occur within the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains ecoregion subareas.

The majority of Focus Species habitat is located within conservation designations (see Table IV.25-5). A substantial portion habitat associated with Non-Covered Species would also be located within conservation designations. CMAs to avoid and minimize adverse impacts include, but are not limited to, the following (these may not apply to all species specifically) (see Table IV.25-5):

- Siting of DFAs to avoid the majority of habitat.
- Avoidance and setbacks from riparian, wetland, and dune habitat.
- Compensation to offset habitat loss.
- Habitat assessments and/or pre-construction surveys.
- Biological monitoring to ensure individuals are not directly affected by operations.
- Projects will be sited and designed to avoid impacts to occupied habitat and suitable habitat to the maximum extent practicable.

- A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring
- Renewable energy projects that are likely to impact bird and bat Covered Species during operation will develop and implement a project-specific Bird and Bat Operational Strategy (BBOS) that meets the approval of the appropriate DRECP Coordination Group.

These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within conservation designations and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects to Covered and Non-Covered Species to a less than significant impact for the Preferred Alternative and Alternatives 1, 3, and 4. These alternatives contribution to cumulative effects would be reduced with implementation of the conservation designations and CMAs.

Under Alternative 2, impacts to desert tortoise would be significant and unmitigable. CMAs would not prohibit the development of renewable energy projects in the TCAs. Additionally, the CMAs would require that impacts to desert tortoise linkage only limit impact to the minimum functionality within each linkage. The adverse impacts to desert tortoise under Alternative 2 are primarily a result of the DFA locations. Renewable energy development in DFAs would be covered in numerous locations considered important for desert tortoise conservation.

In addition to the acreage of lost desert tortoise habitat, impacts in linkages have the potential to reduce or eliminate the linkage function, which cannot be replaced or compensated. The lost linkage function in these important tortoise locations has the potential to isolate desert tortoise populations, which over time would lead to reduced individual fitness related to inbreeding, reduced genetic diversity, reduced resilience of subpopulations to threats, increased risk of extirpation within subpopulations, and a substantially reduced ability of the desert tortoise to recover in the Plan Area. Alternative 2 would contribute to cumulative effects to desert tortoise in combination with other reasonably foreseeable actions.

Under Alternative 2, impacts to Mohave ground squirrel would be significant and unmitigable. The adverse impacts to Mohave ground squirrel would primarily be a result of where DFAs are located. Renewable energy development in DFAs would be covered in numerous locations considered important for Mohave ground squirrel conservation. In addition to the loss of Mohave ground squirrel habitat, impacts in linkages have the potential to reduce or eliminate the linkage function, which cannot be replaced or

compensated. The lost linkage function in these locations has the potential to isolate key population centers for Mohave ground squirrel, which over time would lead to reduced individual fitness related to inbreeding, reduced genetic diversity, reduced resilience of subpopulations to threats, increased risk of extirpation within subpopulations, and a substantially reduced ability of Mohave ground squirrel to recover in the Plan Area. Alternative 2 would contribute to cumulative effects to Mohave ground squirrel in combination with other reasonably foreseeable actions.

The reasonably foreseeable actions described in Tables IV-25-1 through IV.25-4, as well as applicable county General Plans and other ongoing activities, would result in cumulative effects to Covered Species. Within the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains ecoregion subareas, there are approximately 114,700 acres of renewable energy projects that are operational, under construction, and approved (see Table IV.25-1). An additional 29,500 acres of renewable energy projects are under review (see Table IV.25-2). Other large projects within these ecoregion subareas include transmission lines, recreation area plans, mining projects, a high speed rail line, a 63-mile freeway corridor, biofuel projects (45,500 acres), the Eagle Mountain Storage Facility (2,220 acres), and habitat conservation projects (the California Department of Parks and Recreation 28,275-acre resource protection acquisition area; Salton Sea Species Conservation Habitat Project on 3,770 acres; and the Sonny Bono Salton Sea Comprehensive Plan) (see Table IV.25-4). It is anticipated that all reasonably foreseeable actions would be subject to further review and evaluation in compliance with federal, state, and local regulations, and that additional mitigation measures would be imposed on these projects as a result of the approval process. These measures, along with the resource conservation and protection plans, would reduce cumulative impacts to Covered and Non-Covered Species.

As noted above, Table IV.25-5 describes the contribution of the action alternatives to the cumulative effects on Covered Species.

Table IV.25-5
Summary of the Contribution of the DRECP to Cumulative Impacts on Covered Species

Covered Species	% of Habitat in DFAs	% of Habitat in BLM Conservation Designations	Summary
<i>Amphibian/Reptile</i>			
Agassiz's desert tortoise	Less than 1%	Over 88%	<p>Some DFAs overlap sensitive desert tortoise resources. Transmission development would lead to the potential for increased risk of predation or striking by vehicles associated with access roads to support transmission lines, particularly in the Lucerne Valley area. The majority of modeled habitat (88%) and all of critical habitat for desert tortoise is located within existing conservation areas or on BLM land designations. The CMAs would require avoidance of TCAs, except for impacts associated with transmission or disturbed portions of TCAs. CMAs that would prohibit impacts that affect viability of linkages and BLM land designations for all alternatives, except Alternative 2, would increase the conservation of important linkages between recovery units. Compensation CMAs would be required for allowable and unavoidable impacts to important tortoise areas. CMAs require habitat assessments and/or pre-construction surveys.</p> <p>The contribution of the Preferred Alternative, Alternatives 1, 3, and 4 would be reduced with implementation of proposed BLM land designations and CMAs.</p> <p>Under Alternative 2, the amount of overlap of DFA with tortoise the linkage network would be a substantial contribution. In addition, CMAs under this alternative would not prohibit the development of renewable energy in the TCAs. Alternative 2 would result in contributions to cumulative effects.</p>
Flat-tailed horned lizard	4%	63%	<p>Siting of DFAs avoids the majority of habitat. CMAs adopt requirements of the interagency Flat-tailed Horned Lizard Rangewide Management Strategy. CMAs require avoidance of and setbacks from dune habitat, which further avoids and minimizes impacts. Compensation CMAs offset habitat loss. CMAs require habitat assessments and/or pre-construction surveys. Renewable energy projects would include appropriate design features from the Flat-tailed Horned Lizard</p>

Table IV.25-5
Summary of the Contribution of the DRECP to Cumulative Impacts on Covered Species

Covered Species	% of Habitat in DFAs	% of Habitat in BLM Conservation Designations	Summary
			Rangewide Strategy and RMS Interagency Coordinating Committee to reduce mortality. The contribution of the action alternatives would be reduced with implementation of proposed BLM land designations and CMAs.
Mojave fringe-toed lizard	1%	83%	Siting of DFAs avoids the majority of habitat. Habitat would be avoided to the maximum extent practicable along transmission line corridors. CMAs that require avoidance of and setbacks from dunes would also avoid impacts to primary habitat areas for Mojave fringe-toed lizard. LUPA-wide and landscape-level avoidance and minimization CMAs would further avoid and minimize impacts. Compensation CMAs would offset habitat loss. CMAs require habitat assessments and/or pre-construction surveys. The contribution of the action alternatives would be reduced with implementation of proposed BLM land designations and CMAs.
Tehachapi slender salamander	Less than 1%	83%	Siting of DFAs avoids the majority of habitat for this species. CMAs that require avoidance of and setbacks from riparian and wetland habitat would avoid impacts to primary habitat areas for the Tehachapi slender salamander. LUPA-wide and landscape-level avoidance and minimization CMAs would further avoid and minimize impacts. Compensation CMAs would offset habitat loss. CMAs require habitat assessments and/or pre-construction surveys. The contribution of the action alternatives would be reduced with implementation of proposed BLM land designations and CMAs.
<i>Bird</i>			
Bendire's thrasher	Less than 1%	84%	Siting of DFAs avoids the majority of habitat for this species. Operational impacts would be monitored and project-specific mitigation would be implemented as needed. CMAs require avoidance of and setbacks from active nests, riparian habitat and wetland habitat, which further avoids and minimizes impacts. Compensation CMAs offset habitat loss. CMAs require habitat assessments and/or pre-construction surveys. CMAs require biological monitoring to ensure individuals are not directly affected by operations. The

Table IV.25-5
Summary of the Contribution of the DRECP to Cumulative Impacts on Covered Species

Covered Species	% of Habitat in DFAs	% of Habitat in BLM Conservation Designations	Summary
			<p>action alternatives, except Alternative 2, would have a minimal contribution to cumulative effects with implementation of proposed BLM land designations and CMAs.</p> <p>Alternative 2 would result in greater adverse impacts to migratory bird movement corridors. This alternative would contribute to cumulative effects.</p>
Burrowing owl	2%	71%	<p>Solar DFAs and transmission corridors, primarily in the West Mojave and Eastern Slopes subarea, contain large areas of modeled habitat for burrowing owl. CMAs and species-specific survey and setback requirements would site solar facilities in areas that would limit burrowing owl exposure. For some alternatives that have reduced DFA footprints, the richest burrowing owl habitats would be avoided. CMA avoidance and setback provisions for managed wetlands and agricultural drains would also avoid or minimize impacts. CMAs require habitat assessments and/or pre-construction surveys. Operational impacts would be monitored and project-specific mitigation would be implemented if needed. Compensation CMAs would offset habitat loss. The contribution of the Preferred Alternative, Alternatives 1, 3, and 4 would be reduced with implementation of proposed BLM land designations and CMAs.</p> <p>Alternative 2 would result in significant and unmitigable impacts to migratory bird movement corridors. This alternative would contribute to cumulative effects.</p>
California black rail	6%	27%	<p>Siting of DFAs avoids the majority of habitat, except in the Imperial Borrego Valley ecoregion. Operational impacts would be monitored and project-specific mitigation would be implemented if needed. CMAs that require avoidance of and setbacks (buffers) from riparian habitat and wetland habitat would also avoid impacts to primary habitat areas for the California black rail. LUPA-wide and landscape-level avoidance and minimization CMAs would further avoid and minimize impacts. Compensation CMAs would offset habitat loss. The</p>

Table IV.25-5
Summary of the Contribution of the DRECP to Cumulative Impacts on Covered Species

Covered Species	% of Habitat in DFAs	% of Habitat in BLM Conservation Designations	Summary
			<p>contribution of the Preferred Alternative, Alternatives 1, 3, and 4 would be reduced with implementation of proposed BLM land designations and CMAs.</p> <p>Alternative 2 would result in greater adverse impacts to migratory bird movement corridors. This alternative would contribute to cumulative effects.</p>
California condor	2%	73%	<p>The California condor has not been documented to nest or breed in the DRECP Plan Area. The Proposed LUPA assumes no take of condors and therefore no direct impacts. Siting of DFAs avoids the majority of habitat but could affect up to 4,000 acres of potential foraging and temporary roosting habitat. Cumulative impacts would occur inside and outside the DRECP Plan Area and would include other renewable projects, transmission lines, and other large-scale residential and commercial development. CMAs would require detection and curtailment practices to avoid injury and take of a condor, setbacks, and compensation. While cumulative impacts to the condor would be extensive outside of the DRECP Plan Area, the contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMAs.</p>
Gila woodpecker	1%	81%	<p>Siting of DFAs avoids the majority of habitat. CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat would also avoid impacts to primary habitat areas for the Gila woodpecker. LUPA-wide and landscape-level avoidance and minimization CMAs would further avoid and minimize impacts. Compensation CMAs would offset habitat loss. Operational impacts would be monitored and project-specific mitigation would be implemented if needed. The contribution of the Preferred Alternative, Alternatives 1, 3, and 4 would be reduced with implementation of proposed BLM land designations and CMAs.</p> <p>Alternative 2 would result in greater adverse impacts to migratory bird movement corridors. This alternative would contribute to cumulative effects.</p>

Table IV.25-5
Summary of the Contribution of the DRECP to Cumulative Impacts on Covered Species

Covered Species	% of Habitat in DFAs	% of Habitat in BLM Conservation Designations	Summary
Golden eagle–foraging	Less than 1%	87%	<p>Siting of DFAs and transmission corridors within 4 miles of golden eagle territories could reduce foraging opportunities, depending on project siting. CMAs require avoidance of and setbacks from active nests, riparian habitat and wetland habitat, which further avoids and minimizes impacts. Compensation CMAs offset habitat loss. CMAs require habitat assessments and/or pre-construction surveys. CMAs require biological monitoring to ensure individuals are not directly affected by operations. Operational impacts would be monitored and project-specific mitigation would be implemented as needed. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMAs.</p> <p>Alternative 2 would result in greater adverse impacts to migratory bird movement corridors. This alternative would contribute to cumulative effects.</p>
Golden eagle–nesting	Less than 1%	89%	<p>Approximately 10% of nests within the DRECP Plan Area may be impacted (within 1 to 4 miles of DFAs). CMAs require avoidance of golden eagle nests with setbacks within DFAs. CMAs require habitat assessments and/or pre-construction surveys. The number of golden eagles that would be allowed to be taken would be assessed annually. Based on the 2013 data, no more than 15 golden eagles would be allowed to be taken in 2014 by any activities within the DRECP Plan Area. This number considers the effects of ongoing impacts to the local-area population of eagles and other development activities that would occur throughout the DRECP Plan Area (except in conservation areas). Operational impacts would be monitored and project-specific mitigation would be implemented if needed. The contribution of the action alternatives would be reduced with implementation of proposed BLM land designations and CMAs.</p>
Greater sandhill crane	8%	27%	<p>Impacts to Greater sandhill crane associated with DFAS near agricultural lands would occur, primarily in the Imperial Valley, Palo Verde Valley, and Antelope Valley.</p>

Table IV.25-5
Summary of the Contribution of the DRECP to Cumulative Impacts on Covered Species

Covered Species	% of Habitat in DFAs	% of Habitat in BLM Conservation Designations	Summary
			<p>Species specific surveys, setbacks, and other CMAs have been developed to avoid and minimize impacts of renewable energy activities. CMA avoidance and setback provisions for managed wetlands and agricultural drains would avoid or minimize impacts. CMAs require habitat assessments and/or pre-construction surveys. Compensation CMAs would offset habitat loss. The contribution of the Preferred Alternative, Alternatives 1, 3, and 4 would be reduced with implementation of proposed BLM land designations and CMAs.</p> <p>Alternative 2 would result in greater adverse impacts to migratory bird movement corridors. This alternative would contribute to cumulative effects.</p>
Least Bell's vireo	Less than 1%	83%	<p>Siting of DFAs avoids the majority of habitat, primarily within riparian and wetland habitats. CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat would also avoid impacts to primary habitat areas for the least Bell's vireo. LUPA-wide and landscape-level avoidance and minimization CMAs would further avoid and minimize impacts. Compensation CMAs would offset habitat loss. Operational impacts would be monitored and project-specific mitigation would be implemented if needed. The contribution of the Preferred Alternative, Alternatives 1, 3, and 4 would be reduced with implementation of proposed BLM land designations and CMAs.</p> <p>Alternative 2 would result in greater adverse impacts to migratory bird movement corridors. This alternative would contribute to cumulative effects.</p>
Mountain plover	7%	35%	<p>DFAs may impact mountain plover habitat. CMA avoidance and setback provisions for managed wetlands and agricultural drains would avoid or minimize impacts. Compensation CMAs would offset habitat loss. The contribution of the Preferred Alternative, Alternatives 1, 3, and 4 would be reduced with implementation of proposed BLM land designations and CMAs.</p>

Table IV.25-5
Summary of the Contribution of the DRECP to Cumulative Impacts on Covered Species

Covered Species	% of Habitat in DFAs	% of Habitat in BLM Conservation Designations	Summary
			Alternative 2 would result in greater adverse impacts to migratory bird movement corridors. This alternative would contribute to cumulative effects.
Southwestern willow flycatcher	4%	52%	<p>Impacts to riparian communities would be avoided to the maximum extent practicable. Compensation CMAs would offset any impacts determined to be unavoidable. CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat would also avoid impacts to primary habitat areas for the Southwestern willow flycatcher. CMAs also require avoidance of and setbacks from active nests, which further avoids and minimizes impacts, as would LUPA-wide and landscape-level avoidance and minimization CMAs. CMAs require habitat assessments and/or pre-construction surveys. CMAs also require biological monitoring to ensure individuals are not directly affected by operations. The contribution of the Preferred Alternative, Alternatives 1, 3, and 4 would be reduced with implementation of proposed BLM land designations and CMAs.</p> <p>Alternative 2 would result in greater adverse impacts to migratory bird movement corridors. This alternative would contribute to cumulative effects.</p>
Swainson's hawk	7%	35%	<p>Impacts to Swainson's hawk may occur. CMAs require avoidance of Swainson's hawk nests with setbacks within DFAs. CMA avoidance and setback provisions for managed wetlands and agricultural drains would avoid or minimize impacts. Compensation CMAs would offset habitat loss. Operational impacts would be monitored and project-specific mitigation would be implemented as needed. CMAs require habitat assessments and/or pre-construction surveys. The contribution of the Preferred Alternative, Alternatives 1, 3, and 4 would be reduced with implementation of proposed BLM land designations and CMAs.</p> <p>Alternative 2 would result in greater adverse impacts to migratory bird movement corridors. This alternative would contribute to cumulative effects.</p>

Table IV.25-5
Summary of the Contribution of the DRECP to Cumulative Impacts on Covered Species

Covered Species	% of Habitat in DFAs	% of Habitat in BLM Conservation Designations	Summary
Tricolored blackbird	4%	70%	<p>Impacts to riparian communities would be avoided to the maximum extent practicable. Compensation CMAs would offset any impacts determined to be unavoidable. CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat would also avoid impacts to primary habitat areas for the Tricolored blackbird. CMAs also require avoidance of and setbacks from active nests, which further avoids and minimizes impacts, as would LUPA-wide and landscape-level avoidance and minimization CMAs. Compensation CMAs would offset habitat loss. CMAs require habitat assessments and/or pre-construction surveys. CMAs require biological monitoring to ensure individuals are not directly affected by operations. The contribution of the Preferred Alternative, Alternatives 1, 3, and 4 would be reduced with implementation of proposed BLM land designations and CMAs.</p> <p>Alternative 2 would result in greater adverse impacts to migratory bird movement corridors. This alternative would contribute to cumulative effects.</p>
Western yellow-billed cuckoo	Less than 1%	53%	<p>Impacts to riparian communities would be avoided to the maximum extent practicable. Compensation CMAs would offset any impacts determined to be unavoidable. CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat would also avoid impacts to primary habitat areas for the Western yellow-billed cuckoo. LUPA-wide and landscape-level avoidance and minimization CMAs would further avoid and minimize impacts. Compensation CMAs would offset habitat loss. Operational impacts would be monitored and project-specific mitigation would be implemented as needed. The contribution of the Preferred Alternative, Alternatives 1, 3, and 4 would be reduced with implementation of proposed BLM land designations and CMAs.</p> <p>Alternative 2 would result in greater adverse impacts to migratory bird movement corridors. This alternative would contribute to cumulative effects.</p>

Table IV.25-5
Summary of the Contribution of the DRECP to Cumulative Impacts on Covered Species

Covered Species	% of Habitat in DFAs	% of Habitat in BLM Conservation Designations	Summary
Yuma Ridgway's rail	Less than 1%	24%	Siting of DFAs avoids the majority of habitat, except in the Imperial Borrego Valley ecoregion. Operational impacts would be monitored and project-specific mitigation would be implemented as needed. CMAs that require avoidance of and setbacks (buffers) from riparian habitat and wetland habitat would also avoid impacts to primary habitat areas for the Yuma Ridgway's rail. LUPA-wide and landscape-level avoidance and minimization CMAs would further avoid and minimize impacts. Compensation CMAs would offset habitat loss. The contribution of the Preferred Alternative, Alternatives 1, 3, and 4 would be reduced with implementation of Yuma Ridgway's rail land CMAs. Alternative 2 would result in greater adverse impacts to migratory bird movement corridors. This alternative would contribute to cumulative effects.
<i>Fish</i>			
Desert pupfish	7%	25%	Siting of DFAs avoids the majority of habitat for this species. CMA avoidance and setback provisions for managed wetlands and agricultural drains would avoid or minimize potential impacts. Compensation CMAs would offset any habitat loss.
Owens pupfish	Less than 1%	33%	No adverse impacts anticipated. CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat would also avoid impacts to primary habitat areas.
Owens tui chub	Less than 1%	33%	No adverse impacts anticipated. CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat would also avoid impacts to primary habitat areas.
<i>Mammal</i>			
Bighorn sheep – intermountain habitat	Less than 1%	87%	Siting of DFAs largely avoids impacts to bighorn sheep intermountain habitat. Avoidance, minimization, and compensation CMAs would offset habitat loss. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMAs.

Table IV.25-5
Summary of the Contribution of the DRECP to Cumulative Impacts on Covered Species

Covered Species	% of Habitat in DFAs	% of Habitat in BLM Conservation Designations	Summary
Bighorn sheep – mountain habitat	Less than 1%	90%	Siting of DFAs largely avoids impacts to bighorn sheep mountain habitat. Avoidance, minimization, and compensation CMAs would offset habitat loss. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMAs.
California leaf-nosed bat	1%	84%	CMAs require avoidance of and setbacks from riparian habitat and wetland habitat, and compensation CMAs to offset habitat loss. CMAs require habitat assessments and/or pre-construction surveys. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMAs.
Mohave ground squirrel	1%	78%	<p>CMAs would require avoidance of key population centers and would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for allowable and unavoidable impacts. CMAs require habitat assessments and/or pre-construction surveys. The contribution of the Preferred Alternative, Alternatives 1, 3, and 4 to cumulative effects would be reduced with implementation of proposed BLM land designations and CMAs.</p> <p>Under Alternative 2, the amount of overlap of DFA with Mohave ground squirrel habitat and important linkages would be greater. Alternative 2 would result in contributions to cumulative effects.</p>
Pallid bat	1%	85%	CMAs require avoidance of and setbacks from riparian habitat and wetland habitat, and compensation CMAs to offset habitat loss. CMAs require habitat assessments and/or pre-construction surveys. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMAs.

Table IV.25-5
Summary of the Contribution of the DRECP to Cumulative Impacts on Covered Species

Covered Species	% of Habitat in DFAs	% of Habitat in BLM Conservation Designations	Summary
Townsend's big-eared bat	1%	82%	CMA's require avoidance of and setbacks from riparian habitat and wetland habitat, and compensation CMA's to offset habitat loss. CMA's require habitat assessments and/or pre-construction surveys. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMA's.
<i>Plant</i>			
Alkali mariposa-lily	10%	46%	CMA's require surveys for plants on the proposed Focus Species List for all renewable energy activities. CMA's also require avoidance of and setbacks from occupied habitat, and compensation CMA's for unavoidable habitat loss. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMA's.
Bakersfield cactus	3%	71%	CMA's require surveys for plants on the proposed Focus Species List for all renewable energy activities. CMA's also require avoidance of and setbacks from occupied habitat, and compensation CMA's for unavoidable habitat loss. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMA's.
Barstow woolly sunflower	Less than 1%	78%	CMA's require surveys for plants on the proposed Focus Species List for all renewable energy activities. CMA's also require avoidance of and setbacks from occupied habitat, and compensation CMA's for unavoidable habitat loss. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMA's.
Desert cymopterus	Less than 1%	86%	CMA's require surveys for plants on the proposed Focus Species List for all renewable energy activities. CMA's also require avoidance of and setbacks from occupied habitat, and compensation CMA's for unavoidable habitat loss. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMA's.

Table IV.25-5
Summary of the Contribution of the DRECP to Cumulative Impacts on Covered Species

Covered Species	% of Habitat in DFAs	% of Habitat in BLM Conservation Designations	Summary
Little San Bernardino Mountains linanthus	Less than 1%	53%	CMA's require surveys for plants on the proposed Focus Species List for all renewable energy activities. CMA's also require avoidance of and setbacks from occupied habitat, and compensation CMA's for unavoidable habitat loss. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMA's.
Mojave monkeyflower	1%	93%	CMA's require surveys for plants on the proposed Focus Species List for all renewable energy activities. CMA's also require avoidance of and setbacks from occupied habitat, and compensation CMA's for unavoidable habitat loss. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMA's.
Mojave tarplant	Less than 1%	79%	CMA's require surveys for plants on the proposed Focus Species List for all renewable energy activities. CMA's also require avoidance of and setbacks from occupied habitat, and compensation CMA's for unavoidable habitat loss. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMA's.
Owens Valley checkerbloom	Less than 1%	31%	CMA's require surveys for plants on the proposed Focus Species List for all renewable energy activities. CMA's also require avoidance of and setbacks from occupied habitat, and compensation CMA's for unavoidable habitat loss. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMA's.
Parish's daisy	1%	83%	CMA's require surveys for plants on the proposed Focus Species List for all renewable energy activities. CMA's also require avoidance of and setbacks from occupied habitat, and compensation CMA's for unavoidable habitat loss. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMA's.

Table IV.25-5
Summary of the Contribution of the DRECP to Cumulative Impacts on Covered Species

Covered Species	% of Habitat in DFAs	% of Habitat in BLM Conservation Designations	Summary
Triple-ribbed milk-vetch	0%	87%	No adverse impacts anticipated. Transmission corridors would avoid habitat for this species. The contribution of the action alternatives to cumulative effects would be reduced with implementation of proposed BLM land designations and CMAs.

Note: Percentages are based on acres of DFAs and conservation designations under the Preferred Alternative. Percentage of habitat represents total habitat within the DFA. As noted in Volume II, for all alternatives, the DFA footprint is much larger the area required for renewable development.

California Condor

The Preferred Alternative and action alternatives would likely result in loss of condor foraging habitat within DFAs. Habitat loss would be minimal overall (less than 1%). Designation of BLM lands would offset the adverse effects of habitat loss within DFAs by providing protections to condor food sources, such as native ungulate populations as well as cattle and sheep. Foreseeable future wind projects as well as the development highlighted in Section IV.25.2.2.2 both inside and outside the DRECP Plan Area could result in direct and indirect effects on suitable condor foraging habitat; however, these projects are not anticipated to substantially affect condor's ability to find food sources within the DRECP Plan Area. The ongoing availability of open spaces and foraging areas throughout the DRECP Plan Area, particularly within existing and proposed BLM land designations, that are within the historic range of the condor in California would further reduce any cumulative effects. Although there would likely be cumulative loss of foraging habitat associated with the action alternatives when considered in combination with past, present, and other reasonably foreseeable actions, the amount of foraging habitat conserved would be greater and serve to reduce overall adverse effects.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds.

Proposed DFAs for renewable energy development activities under the DRECP Proposed LUPA action alternatives would potentially result in adverse impacts to vegetation types and the loss of vegetation that serve as nesting habitat for migratory birds. The Preferred Alternative and action alternatives would also result in human presence and noise that have the potential to cause nest abandonment and disturbance to nesting birds. Implementation of avoidance and minimization CMAs and compensation CMAs

established to offset the impacts of renewable energy activities would reduce adverse impacts. CMAs include season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds. These CMAs would contribute to the overall conservation strategy, which includes conservation within proposed BLM land designations. Implementation of the CMAs as part of the overall conservation strategy would reduce adverse effects to nesting and migratory birds. Overall, the proposed action alternatives' contribution to cumulative effects would be reduced with implementation of the proposed BLM land designations and CMAs.

The reasonably foreseeable actions described in Tables IV-25-1 through IV.25-4 and other ongoing activities would result in cumulative effects to nesting and migratory birds. While nesting and migratory birds occur throughout the DRECP Plan Area, the majority of DFAs are located in Desert Scrub within the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes ecoregion subareas. Within these ecoregion subareas, approximately 84,000 acres of renewable energy projects are operational, under construction, and approved (see Table IV.25-1). An additional approximately 22,000 acres of renewable energy projects are under review (see Table IV.25-2). Other large projects within these ecoregion subareas include transmission lines, a high speed rail line, a new 63-mile freeway corridor, and the California State Parks 28,275-acre resource protection acquisition area (see Table IV.25-4). All of the past, present, and reasonably foreseeable projects listed earlier would contribute to cumulative impacts to nesting and migratory birds. It is anticipated that all reasonably foreseeable actions would be subject to further review and evaluation in compliance with federal, state, and local regulations, and that additional mitigation measures would be imposed on these projects as a result of the approval process. These measures, along with the resource conservation and protection plans, would reduce cumulative effects to nesting and migratory birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Proposed DFAs for renewable energy development activities under the DRECP Proposed LUPA action alternatives would potentially result in adverse impacts to habitat linkages and wildlife movement corridors, including migratory bird and fish corridors

Action alternatives could potentially fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, disruption of migratory patterns, and remaining habitat that may be more exposed to the edge effects of adjacent development. Proposed LUPA land designations and CMAs would reduce and minimize potential impacts. Renewable energy activities would be sited and designed to maintain the function of wildlife connectivity within linkages, see Landscape-

Level Avoidance and Minimization CMAs: Linkages and Connectivity. To minimize habitat fragmentation and population isolation, DFAs were sited within areas with greater degradation to avoid intact habitats. Impacts to environmental gradients were also considered and minimized.

Under the Preferred Alternative and Alternatives 1 and 3, implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of renewable energy activities on Focus Species (discussed earlier) would also reduce adverse impacts. CMAs include season restrictions, survey requirements, and setbacks necessary to avoid and minimize impacts. These CMAs would contribute to the overall conservation strategy, which includes conservation within BLM land designations. Implementation of the CMAs as part of the overall conservation strategy would reduce adverse effects to habitat linkages and wildlife movement corridors. Overall, the contribution of the Preferred Alternative and Alternatives 1 and 3 to cumulative effects would be reduced with implementation of the BLM land designations and CMAs.

Alternative 2 would result in greater adverse impacts to habitat linkages and wildlife movement corridors. Impacts to habitat linkages and movement of migratory birds would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. However, the DFAs under Alternative 2 are located in important linkage areas such that development of renewable energy facilities in key locations would have an adverse impact on wildlife movement. Alternative 2 would result in impacts of habitat fragmentation and population isolation that cannot be entirely offset through conservation strategy measures. Adverse impacts could not be mitigated or otherwise avoided or minimized without modifying the CMAs or DFAs to limit or prohibit development in sensitive areas, which would modify the purpose and intent of the alternative. Alternative 2 would contribute to cumulative effects to habitat linkages and wildlife movement corridors in combination with other reasonably foreseeable actions.

Alternative 4 would also result in adverse impacts to habitat linkages and wildlife movement corridors. Impacts would contribute to overall cumulative effects. Under Alternative 4, the designated Variance Process Lands would have the potential to undermine the integrity and long-term conservation value of the conservation strategy for desert tortoise. The inclusion of Variance Process Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the proposed BLM land designations under Alternative 4. The designation of Variance Process Lands scattered across the DRECP Plan Area leads to uncertainty regarding the protection and long-term viability of the habitat linkages within the BLM land designations. Alternative 4 would contribute to cumulative effects to desert tortoise in combination with other reasonably foreseeable actions.

The reasonably foreseeable actions described in Tables IV-25-1 through IV.25-4 and other ongoing activities would result in cumulative effects to habitat linkages and wildlife movement corridors. Approximately 115,000 acres of renewable energy projects are operational, under construction, and approved (see Table IV.25-1). An additional 39,300 acres of renewable energy projects are under review (see Table IV.25-2). Other large projects include transmission and pipelines, recreation area plans, mining projects, a high speed rail line, a 63-mile freeway corridor, biofuel projects (45,500 acres), the Eagle Mountain Storage Facility (2,220 acres), and habitat conservation projects (California State Parks 28,275-acre resource protection acquisition area, Salton Sea Species Conservation Habitat Project on 3,770 acres, and the Sonny Bono Salton Sea Comprehensive Plan) (see Table IV.25-4). It is anticipated that all reasonably foreseeable actions would be subject to further review and evaluation in compliance with federal, state, and local regulations, and that additional mitigation measures would be imposed on these projects as a result of the approval process. These measures, along with the resource conservation and protection plans, would reduce cumulative effects to habitat linkages and wildlife movement corridors.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

Proposed DFAs for renewable energy development activities under the DRECP Proposed LUPA action alternatives could potentially fragment habitats and result in isolation of populations of listed and sensitive plants and wildlife. The potential adverse effects of habitat fragmentation and population isolation would be avoided and minimized through the implementation of the BLM land designations. Impacts of habitat fragmentation and population isolation would be avoided and minimized through requiring renewable energy development to occur within DFAs and through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of renewable energy activities. Impacts of the action alternatives would be reduced with implementation of CMAs as part of the overall conservation strategy. Overall, the proposed action alternatives' contribution to cumulative effects would be reduced with implementation of the BLM land designations and CMAs.

The reasonably foreseeable actions described in Tables IV-25-1 through IV.25-4 and other ongoing activities would result in cumulative effects to habitat fragmentation and population isolation. The majority of reasonably foreseeable renewable energy projects and large projects would require mitigation, minimization, and avoidance measures to reduce impacts. These measures, along with the resource conservation and protection plans, would reduce cumulative effects to habitat fragmentation and population isolation.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Proposed DFAs for renewable energy development activities under the DRECP Proposed LUPA action alternatives would potentially result in an increase in predator populations in the DRECP Plan Area, which could in turn adversely affect susceptible Focus Species. Higher predator densities and hence high predation rates are a documented effect of increased human development in the DRECP Plan Area. Disturbed landscapes with relatively high levels of human activity often attract and supplement predators such as ravens. Ravens also occur in undisturbed areas that provide forage, water, and nesting substrate. Approximately 57,000 acres of disturbance may occur within previously undisturbed landscapes under the action alternatives. Impacts occurring within primarily undisturbed portions of DFAs may lead to increased predation. Disturbance would likely increase predation rates, particularly on susceptible species such as tortoise, Mojave fringed-toed lizard, and nesting bird species.

Proposed LUPA land designations would avoid and minimize impacts related to increased predation. Predation would also be avoided or minimized through application of a Common Raven Management Plan that includes guidance on removal of trash and organic waste, measures to minimize introduction of new water sources including pooling of water from dust control, removal of carcasses from bird and bat collisions, and reduction in new nesting and perching sites where feasible.

Implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of renewable energy activities on Focus Species (discussed earlier) would also reduce adverse impacts. Implementation of the CMAs as part of the overall conservation strategy and the Common Raven Management Plan would minimize adverse effects from predation. Overall, the proposed action alternatives' contribution to cumulative effects would be reduced with implementation of the BLM land designations and CMAs.

The reasonably foreseeable actions described in Tables IV-25-1 through IV.25-5 and other ongoing activities, would result in cumulative effects from predation. Within the Kingston and Funeral Mountains, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes ecoregion subareas, approximately 68,000 acres of renewable energy projects are operational, under construction, and approved (see Table IV.25-1). An additional 21,400 acres of renewable energy projects are under review (see Table IV.25-2). Other large projects within these ecoregion subareas include pipeline and transmission projects, a high-speed rail line, a 63-mile freeway corridor, and the California State Parks 28,275-acre resource protection acquisition area. The majority of reasonably foreseeable renewable energy projects and large projects located within these

ecoregion subareas would require mitigation, minimization, and avoidance measures to reduce impacts to vegetation. These measures, along with the resource protection plans, would reduce cumulative impacts related to predation.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

Proposed DFAs for renewable energy development activities under the DRECP Proposed LUPA action alternatives would result in an increase in operations-related impacts to Focus Species, primarily to avian and bat species from wind turbines, solar facilities, and transmission facilities in the DRECP Plan Area. Collision with transmission systems, wind turbines, power towers, heliostats and solar arrays, injury or mortality from exposure to concentrated solar flux, and electrocution are all known impacts of renewable energy generation facilities to avian and bat species. The majority of impacts from renewable energy and transmission development would occur within the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes ecoregion subareas. Operational activities would result in increases of bird and bat collision rates at renewable energy and transmission facilities.

Operational impacts would result in take of Focus Species. Proposed BLM land designations and implementation of CMAs to avoid and minimize impacts inside and outside the DFAs would offset some adverse impacts to Focus Species from collision. Resource-specific CMAs would also be required for renewable energy activities impacting specific resources. Measures would also include habitat compensation and habitat restoration measures.

Proposed BLM land designations would help avoid and minimize impacts related to an expected increase of collisions. CMAs require habitat assessments and pre-construction surveys. These CMAs would be implemented to avoid or minimize risk to Focus Species localities. CMAs would also require habitat setbacks to avoid and minimize impacts. Applicants would be required to develop and implement a project-specific Bird and Bat Operational Strategy to further avoid and minimize direct mortality due to operation of facilities.

Implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of renewable energy activities on Focus Species (discussed earlier) would reduce adverse impacts. Implementation of the CMAs as part of the overall conservation strategy would reduce adverse effects. Overall, the proposed action alternatives' contribution to cumulative effects would be reduced with implementation of the BLM land designations and CMAs.

The reasonably foreseeable actions described in Tables IV-25-1 through IV.25-4 and other ongoing activities would result in cumulative effects from collisions. Within the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes ecoregion subareas, approximately 84,700 acres of renewable energy projects are operational, under construction, and approved (see Table IV.25-1). An additional 24,600 acres of renewable energy projects are under review (see Table IV.25-2). Other large projects within these ecoregion subareas include transmission lines, a high-speed rail line, a 63-mile freeway corridor, and the California State Parks 28,275-acre resource protection acquisition area (see Table IV.25-4). The majority of reasonably foreseeable renewable energy projects and large projects located within these ecoregion subareas would require mitigation, minimization, and avoidance measures to reduce impacts to avian species and bats. These measures, along with proposed BLM land designations, would reduce cumulative effects to avian species and bats.

Critical Habitat Impacts

Critical habitat for Focus and Non-Focus BLM Special Status Species within the DRECP Plan Area is located predominantly within BLM designations or other conservation areas. Impacts to critical habitat, particularly for the desert tortoise, may occur. The impacts of the past, present, and other reasonably foreseeable actions proposed within the DRECP Plan Area could result in cumulatively considerable effects to critical habitat. The majority of projects located within the DRECP Plan Area would require mitigation, minimization, and avoidance measures to reduce impacts to critical habitat. These measures, along with proposed BLM land designations, would reduce cumulative effects to critical habitat.

Overall, for the majority of species, action alternatives would impact less than 1% of critical habitat for Focus and Non-Focus BLM Special Status Species. The incremental contribution of the action alternatives would be reduced with proposed BLM land designations as well as implementation of the critical habitat CMAs to avoid and minimize adverse impacts. The proposed action alternatives are expected to result in a less than considerable contribution to the DRECP Plan Area cumulative effects on critical habitat.

IV.25.3.8 Cultural Resources

This section evaluates the potential for DRECP, and other development projects within the vicinity of DRECP, to have cumulative impacts on cultural resources. For a listing of cumulative projects within the DRECP area, including locations, acreage, and status, see Tables IV.25-1 through IV.25-4.

For the cultural resources cumulative analysis, the geographic area is considered the entire LUPA Decision Area. The DRECP area is bordered by Baja California, Mexico, to the south;

Arizona and Nevada to the east; the Sierra Nevada and Tehachapi mountain ranges to the north and northwest; and the Peninsular and Transverse mountain ranges to the west. The DRECP area covers approximately 22,587,000 acres (35,000 square miles). The analysis of cumulative impacts from the DRECP also addresses transmission Outside the DRECP area. Approximately 780 miles of transmission lines covering over 30,000 acres would need to be constructed to support renewable energy development within the DRECP area. Future transmission corridors would pass through portions of the following counties: Alameda, Fresno, Kern, Kings, Los Angeles, Merced, Riverside, San Bernardino, San Diego, San Joaquin, and Stanislaus. The construction, operation and maintenance, and decommissioning of these transmission lines could result in additional impacts to cultural resources.

Estimated numbers of cultural resource sites within various portions of the DRECP area were calculated by overlaying the BLM Cultural Resources Geodatabase (CRG) for the DRECP area with the areas where renewable energy could potentially be developed for the No Action Alternative, Development Focus Areas, and conservation designations for each alternative. The CRG, compiled through March 2013 by BLM, contains cultural resource locations and survey information. This data was gathered from several sources including: (1) BLM field office geodatabases within the DRECP area; (2) BLM GIS 2004 Legacy data; (3) South Coastal Information Center Mapping for Eastern San Diego County; (4) the West Mojave Plan Court Remedy records review mapping; (5) mapping associated with renewable energy projects; and (6) State Historic Resource Information Mapping Project. While current up to March 2013, it is important to mention that this data has varying degrees of completeness, with information on some cultural resources being more detailed than others. In addition, California Register of Historic Resources eligibility was not considered as a site attribute for the CRG. These models suggest an estimated 4,000 cultural resource sites could be directly impacted by renewable energy development in the No Action Alternative; 6,600 sites within the Preferred Alternative; 9,500 sites in Alternative 1; 8,000 sites in Alternative 2; 5,700 sites in Alternative 3; and 7,900 sites in Alternative 4. It is important to keep in mind that these figures are rough estimates and that large portions of the Southern California Desert remain unsurveyed and may contain cultural resources. The identification, evaluation, and treatment of cultural resources pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations at 36 CFR 800 would need to occur on a project-specific level to ensure that any, as-yet unidentified cultural resources are taken into account.

Impact CR-1: Plan components could affect historic and built-environment resources.

Impacts to historic and built-environment resources from all phases of renewable energy development are described in Chapter IV.8, Section IV.8.2, Typical Impacts Common to All Alternatives. Ground disturbance activities associated with the construction of past, present, and reasonably foreseeable projects listed in Tables IV.25-1 through IV.25-4 and

renewable energy projects permitted under Phase II of the DRECP have the potential to have adverse cumulative effects to thousands of buried and aboveground historic resources in addition to built-environment resources. The operation and maintenance of multiple renewable energy projects could result in cumulative, long-term impacts to the visual integrity of historic trails, landscapes, and buildings. Continuous noise and vibrations from wind turbines could result in long-term impacts to the structural integrity of buildings and would degrade the sensory setting of historic resources.

Four recent renewable energy projects in the DRECP area—Desert Sunlight Solar Farm, Genesis Solar Energy Project, Palen Solar Power Project, and Blythe Solar Power Project—provide examples of the types of resources present and the cumulative impacts anticipated for these projects. For these projects, a total of 29,574 acres were subject to pedestrian surveys resulting in the identification of 554 cultural resources (BLM 2012). Examples of historic and built-environment resources identified include debris scatters, remains of military camps associated with the Desert Training Center/California Arizona Maneuver Area, water conveyance systems (e.g., Colorado River Aqueduct), roads, transmission lines, rock cairns and alignments, and mine claim markers, mining districts and townsites (e.g., Eagle Mountain Mine and Townsite). A large California Register of Historical Resources (CRHR)-eligible historic district, known as the Desert Training Center Cultural Landscape, has also been identified (Bagwell and Kline 2010, Braun and Gates 2013, Braun et al. 2013).

Cumulative impacts to historic and built-environment resources from these projects include cumulative effects to the Desert Training Center/California Arizona Maneuver Area Cultural Landscape from the physical damage to contributors to these resources, such as remains of military camps. Cumulative impacts from renewable energy projects similar to those described for the solar power projects would occur to historic and built-environment resources located in other portions of the DRECP area.

Other large projects that would result in cumulative effects to historic and built-environment resources in addition to renewable energy facilities include transmission lines, mine expansions, pipelines, high-speed rail construction, a fiber optic network, etc. (Table IV.25-4). Projects such as the Calneve Pipeline Expansion Project, which would result in 2,481 acres of ground disturbance or the Desert Xpress Enterprises High-Speed Rail, which would result in 972 acres of ground disturbance, could result in the degradation of numerous historic resources, particularly archaeological sites.

Impact CR-2: Plan components could affect prehistoric resources.

Impacts to prehistoric resources from all phases of renewable energy development are described in Section IV.8.2, Typical Impacts Common to All Alternatives. Ground disturbance activities associated with the construction of past, present, and reasonably foreseeable

projects listed in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP have the potential to have adverse cumulative effects on thousands of buried and aboveground prehistoric resources. The operation and maintenance of multiple renewable energy projects could result in cumulative, long-term impacts to the visual integrity of prehistoric trails, traditional cultural landscapes, and sacred sites. Continuous vibrations from wind turbines could damage or degrade rock art sites, and the constant noise generated from wind turbines could degrade the sensory setting of prehistoric resources. As discussed previously, information on cultural resources recorded for the Desert Sunlight Solar Farm, Genesis Solar Energy Project, Palen Solar Power Project, and Blythe Solar Power Projects provide an indication of the types of prehistoric resources present in a portion of the DRECP area (BLM 2012).

Examples of prehistoric resources identified include lithic scatters, ceramic scatters (e.g., pot drops), cairns, geoglyphs, petroglyphs, temporary camps, trails, rock rings or cleared areas, thermal cobble features, quarry sites, and traditional cultural properties (e.g., North Chuckwalla Mountains Prehistoric Quarry District). A large CRHR-eligible historic district, known as the Prehistoric Trails Network Cultural Landscape (PTNCL), has also been identified (Bagwell and Kline 2010, Braun and Gates 2013, Braun et al. 2013). Cumulative impacts to prehistoric resources from these projects include significant cumulatively considerable impacts to the PTNCL regional prehistoric trails and the resources and destinations that they connected.

Cumulative impacts similar to those described for the solar power projects would occur to prehistoric resources located in other portions of the DRECP area from renewable energy projects. Examples of other large projects that would result in cumulative effects to prehistoric resources in addition to renewable energy facilities are described under Impact CR-1.

Impact CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony.

Impacts to human remains or associated cultural resources from all phases of renewable energy development are described in Section IV.8.2, Typical Impacts Common to All Alternatives. Disturbance of human remains or associated cultural items, including funerary objects, sacred objects, and objects of cultural patrimony could result from construction-related ground disturbance activities. Ground disturbing activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of burials and associated cultural items, which are typically unmarked. In addition, cultural resource surveys and consultation with the State Historic Preservation Office (SHPO) and any affected parties conducted prior to implementation of these projects could identify human remains visible on the ground surface and these areas would be

avoided through the use of a buffer or fencing. It must be noted, however, that graves are often unmarked and the unintentional discovery of human remains or associated cultural resources during all phases of development of renewable energy projects and other large projects listed in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP, could result in adverse cumulative effects to these resources. For known human remains and associated cultural resources, such as cemeteries or individual marked gravesites, the operation and maintenance of multiple renewable energy projects could result in cumulative, long-term impacts to the visual and sensory setting of these resources. For unknown human remains and associated cultural resources, ground-disturbing activities and continuous vibrations from operation and maintenance of existing projects could disturb these resources.

Impact CR-4: Plan components could impact cultural landscapes.

Impacts to cultural landscapes are described in Section IV.8.2, Typical Impacts Common to All Alternatives. Ground disturbance activities associated with the construction of past, present, and reasonably foreseeable projects listed in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP have the potential to damage or alter cultural landscapes. Ground disturbance and site characterization activities could cause damage to cultural or natural features of a cultural landscape. Construction vehicles and increased dust generated during ground disturbances could temporarily impact the visual setting of the cultural landscapes. Long-term impacts on the visual setting of cultural landscapes could occur from the permanent presence of project structures. Soil erosion from water used to clean roads and facilities during operations and maintenance activities could impact the visual setting of cultural landscapes. The long-term presence of renewable energy structures change the visual setting and can affect the value of cultural landscapes. In addition, many of the projects in Tables IV.25-1 through IV.25-4 are within proximity of the DRECP DFAs and so would be more likely to combine with the development permitted under the DRECP to result in cumulative effects to these landscapes.

IV.25.3.9 Native American Interests

The geographic area considered in this cumulative analysis is the same as that analyzed in Section IV.25.3.8, and includes the entire DRECP area, approximately 22, 587, 000 acres (35,000 square miles) in addition to transmission outside the DRECP area. The site reconnaissance and planning, construction, operations, maintenance, and decommissioning of these transmission lines will result in impacts to resources important to tribes.

Tribal interests include two broad areas, as described in detail in Chapter III.9, Section III.9.4, Physical World Resources and Process-Related Concerns. The categories are

consistent with the Native American Element (NAE) of the 1980 CDCA Plan, the goal of which was to address Native American values associated with “traditional heritage and religious concerns” and the “long-range goals and planning efforts of reservation governments” in or adjacent to the CDCA (BLM 1980a, Native American Element).

Maps representing NAEs show “concentrated, sensitive areas of traditional Native American secular and religious uses” and their location within and in relation to traditional tribal territories and Areas of Critical Environmental Concern (ACEC) (BLM 1980a, Native American Element). Figures IV.9-1 through IV.9-6 are based on these original maps, with the DRECP boundaries overlaid on top of the boundary of the CDCA. These maps also show DRECP-specific elements including ecoregion subareas, Development Focus Areas, and existing and proposed conservation lands. Tables presented in Appendix R2.9 list acres of NAEs by ecoregion subarea per alternative and number of acres impacted by technology type (solar, wind, geothermal, transmission). These tables also identify acres of NAE in Conservation Lands, Available Development Areas, and BLM Land Use Plan Amendments.

It is important to note that the CDCA-designated NAE areas, while important, are not an exhaustive list of places or areas important to Native Americans. It will be necessary to conduct research, consultation, and meaningful engagement with affected Native American communities on a project-specific level to identify additional areas.

Impact TL-1: Plan components could affect resources of cultural and spiritual importance to tribes.

Impacts to resources of cultural and spiritual importance to tribes from all phases of renewable energy development are described in Chapter IV.9, Section IV.9.2, Typical Impacts Common to All Alternatives. All phases of renewable energy development associated with past, present, and reasonably foreseeable projects listed in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP have the potential to have adverse cumulative impacts to resources of cultural and spiritual importance to tribes. The No Action Alternative, all of the action alternatives, and transmission outside the DRECP area would result in an adverse cumulative impact on cultural and spiritual resources of tribal concern.

Site characterization activities, including those related to transmission, are unlikely to result in damage of physical world resources of tribal concern. However, these activities could include geotechnical borings, installation of temporary meteorological stations, access roads, and staging areas, which do have the potential to impact physical world resources of tribal concern. Process-related issues are more likely to occur during site characterization activities. These issues include but are not limited to consultation, ethnography, document review, confidentiality, monitoring, repatriation, access, and

environmental justice. These process-related concerns, which are already difficult for renewable energy developers and agencies to avoid, would be compounded by the addition of the DRECP and associated renewable energy development resulting in a cumulative impact on process-related concerns.

For example, the ancestral lands of several California Desert tribes are included in much of the DRECP area. The addition of DRECP-related renewable energy projects to those cumulative projects identified in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP would result in the need for these tribes to conduct additional document review, attend additional consultation meetings, and attempt to protect their culturally and spiritually important resources, straining their already limited resources.

Site construction activities, including those related to transmission, have the greatest potential to cumulatively impact physical world resources of tribal concern because of the increased ground disturbance during this phase. With the addition of the DRECP and associated renewable energy development there would be a cumulative impact on physical world resources important to tribes, through the damage, disturbance, or alteration of these resources. In addition, there would be a cumulative impact on the setting of culturally and spiritually important tribal resources from the visual impact created from utility-scale renewable energy facilities (e.g., wind turbines, solar power towers, solar troughs) for those resources for which the setting is an integral component of the resource's significance. For example, during the Palen Solar Electric Generating System siting review by the CEC, an extensive ethnographic landscape was identified and found to have a significant and unavoidable impact from the proposed installation of two 750-foot tall solar power towers. The installation of similar types of renewable energy development could cumulatively impact similar cultural and ethnographic landscapes. Site decommissioning, reclamation, and abandonment would have the least amount of cumulative impacts, if ground disturbance is confined to the original disturbance during construction. Fewer cumulative impacts to culturally and spiritually important resources are likely during the operations and maintenance of renewable energy facilities. However, as with all phases of renewable energy development, there is a potential to cumulatively impact process-related concerns if consultation and communication between project developers, agencies and stakeholders is inadequate.

Impact TL-2: Costs associated with the participation in environmental documents required by the Plan would be disproportionately borne by tribal governments and organizations.

Impacts of the projects permitted under the DRECP associated with tribal process concerns include those that place disproportionate stress upon services offered by tribal

governments and organizations to their members. In particular, this includes stress on those individuals and departments that participate in the CEQA and NEPA process. These impacts would be similar for the renewable energy projects under environmental review or first-in-line, listed in Tables IV.25-2 and IV.25-3, because they are also undergoing or will undergo CEQA and NEPA review. Some of the projects identified in Table IV.25-4 are also undergoing or will undergo CEQA and NEPA review and would similarly combine with the DRECP to result in cumulative effects disproportionately borne by tribal governments and organizations.

IV.25.3.10 Paleontological Resources

The geographic area considered in this paleontological cumulative analysis is the same as that analyzed in Section IV.25.3.8. It includes the entire DRECP area, approximately 22,587,000 acres (35,000 square miles) in addition to transmission outside the DRECP area. Impacts to paleontological resources are analyzed based on several factors, including: the distribution of known fossil localities and the potential fossil-yield of the geologic units underlying the DRECP area; the location, extent, and depth of a project's ground disturbance; the degree to which unintended increases in public access could encourage unauthorized collection, theft or vandalism; and the effectiveness of avoidance/minimization measures in the DRECP and in existing regulations.

Within the DRECP area, impacts to paleontological resources were analyzed using Geographic Information Systems (GIS). The proposed Development Focus Areas (DFAs) for each alternative were evaluated according to the extent to which they intersect geologic units with various Potential Fossil Yield Classification (PFYC) classes (i.e., low/very low PFYC Class 1 and 2, moderate/unknown PFYC Class 3, and high/very high PFYC Class 4 and 5). It was presumed that DFAs that cover more area underlain by geologic units with a high or very high PFYC rating are more likely to adversely impact significant paleontological resources than those underlain by geologic units with a low or very low PFYC rating. This quantitative impact analysis was performed at a high level and by ecoregion subarea. Ecoregion subareas were considered an appropriate geographic unit for paleontological resource evaluation because their boundaries generally coincide with important geologic and geomorphic transitions (see Appendix R2, Table R.2.10-5).

Impact PR-1: Land disturbance could result in loss, damage, or destruction of significant paleontological resources.

Impacts to paleontological resources from all phases of renewable energy development are described in Chapter IV.10, Section IV.10.2, Typical Impacts Common to All Alternatives. The extent and magnitude of potential impacts to paleontological resources depend on the resources discovered and the effectiveness of mitigation measures. The bulk of potential impacts to paleontological resources would typically occur during the excavation and

earth-moving phases of construction. Fewer impacts to paleontological resources from land disturbance are anticipated during site characterization, decommissioning, and operations and maintenance activities.

The cumulative projects in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP in combination with the renewable energy projects associated with the DRECP have the potential to result in cumulative impacts to paleontological resources. The PFYC Class 3, 4 and 5 areas (i.e., those areas with a moderate/unknown or high/very high potential for paleontological resources) range from 82% in the No Action Alternative to 93% in the Preferred Alternative. Because many of the cumulative projects are located near DFAs, comparable percentage of PFYC Class 3, 4 and 5 areas are likely. Even with incorporated mitigation strategies, there is a potential during certain excavation activities (as discussed in Section IV.10.2) to disturb, damage, or destroy fossils without first providing an opportunity to identify, study, and/or salvage them. Therefore, a cumulative impact on paleontological resources from land disturbance would occur.

Impact PR-2: Construction and operational activities could increase the rate of erosion or soil loss or alter drainage patterns such that significant paleontological resources could be removed from their context, fragmented, and/or dispersed.

There is a potential for the loss, damage, or destruction of near-surface paleontological resources during construction, and operations and maintenance of renewable energy facilities from the influence of development on the agents of erosion and sedimentation. Such impacts caused by projects permitted under the DRECP would combine with similar impacts caused by the renewable projects listed in Tables IV.25-1 through IV.25-3 and renewable energy projects permitted under Phase II of the DRECP. Projects listed in Table IV.25-4 would also have ground disturbance resulting in similar loss, damage, or destruction to near-surface paleontological resources resulting in a cumulative impact.

The potential for these types of impacts varies based on the type of renewable energy technology employed. Solar energy would have the greatest potential for adverse hydrologic and erosion impacts, but substantial adverse impacts can be avoided or sufficiently minimized through compliance with applicable laws, ordinances, regulations, and standards. These include implementation of stormwater pollution prevention plan design criterion, monitoring water quality and wastewater management, and clean water act and related state and local agency compliance. To the extent these actions reduce impacts on hydrology, drainage, and erosion, they would also reduce impacts on paleontological resources. Therefore, with mitigation incorporated, there would not be a cumulative impact on paleontological resources as a result of erosion or soil loss or the alteration of drainage patterns.

Impact PR-3: Construction and operational activities that allow increased human access to significant paleontological resources could result in an increase in unauthorized collection or vandalism.

There is a potential for impacts to paleontological resources during the construction, and operations and maintenance phases of renewable energy projects through unintended increases in public access as a result of the establishment of access roads, corridors, or facilities in otherwise intact and inaccessible areas. This increased access could potentially lead to unauthorized collection activities, theft, or vandalism of paleontological resources. However, because renewable energy and transmission development would not generally be intended to provide public access (unless it interferes with an existing OHV route or other trail), individual projects would preclude public access to the actual generation facilities by installing perimeter fencing and signage. To restrict public access along private roads or transmission corridors, gates could be installed, and signage could be posted to inform the public to remain on public roads and open OHV routes. Generally, those hobbyists and enthusiasts intent on collecting fossils would carry out such unauthorized activities regardless of the location and extent of renewable energy development. In the event fossils are actually uncovered as a result of construction, grading, and excavation, they would be protected under monitoring and mitigation programs, provided such a program has been implemented per project-specific mitigation. However, despite no concrete evidence of renewable energy development resulting in unauthorized fossil collection activities, there would be minor, incremental cumulative impacts to paleontological resources from increased access to significant paleontological resources.

IV.25.3.11 Land Uses and Policies

The geographic scope of the cumulative impacts for land use and policies are the individual counties within the DRECP and along the transmission outside the DRECP area. This is because the existing plans and policies are generally county specific so would not combine to impact areas larger than the county.

Impact LU-1: Development on BLM-managed lands would affect non-BLM lands.

Renewable energy generation and other development permitted under the DRECP on BLM would indirectly affect non-BLM lands because it would require transmission that would cross private land to reach the load areas. Transmission lines are developed as linear corridors that traverse many types of land uses, including urban areas with high-density residential and commercial land uses. The development of transmission lines typically results in short-term impacts to nearby land uses during construction. Projects listed in Tables IV.25-1 through IV.25.3 in addition to renewable energy development on private land would also require transmission to reach the load. However, because the transmission

analysis for the DRECP was designed for the full build out of the DRECP, minimal additional transmission would be required reducing any potential cumulative impacts to land use.

Construction and operation of transmission facilities are considered compatible uses with most land use designations and are common features within established communities. However, as highlighted in Section IV.25.2.2, for some counties, in particular San Diego, Los Angeles, western Riverside County, and Fresno the general transmission line corridors would be constrained by existing land uses and would potentially result in substantial conflicts with existing uses.

IV.25.3.12 Agricultural Land and Production

The geographic scope for cumulative impacts to agriculture would be the DRECP boundary. While agriculture is discussed below for the counties, the conversion of agricultural land to other uses would be cumulative for all of the counties combined.

Impact AG-1: Renewable energy development on BLM lands and resulting transmission lines would impair agricultural use of adjacent agricultural operations.

Development of projects on BLM land could affect adjacent non-BLM lands designated as Important Farmland. Outside of BLM lands, transmission development could affect Important Farmland. Under all alternatives, DRECP area potential impacts include (1) damage to equipment, crops, and livestock from increased traffic on farm roads; (2) competition for water resources, including groundwater; (3) water and soil contamination; (4) suppression plant growth by fugitive dust; (5) soil erosion; (6) spread of weeds; and (7) shading of crops. Projects listed in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP would also result in the conversion of agricultural land to nonagricultural use. Most notably, projects listed in Table IV.25-1 in the Imperial Borrego Valley would convert approximately 13,500 acres of Important Farmland and projects listed in Table IV.25-2 in the Imperial Borrego Valley would convert up to 7,000 acres of Important Farmland. The loss of 20,500 acres of Important Farmland would combine with the conversion due to transmission associated with projects on the BLM land that are permitted under the DRECP to result in a cumulatively considerable impact due to the conversion of Important Farmland to nonagricultural use. Implementation of mitigation that would reduce impacts to agriculture resources would likely be required for projects on private land and would reduce the cumulative effect.

IV.25.3.13 BLM Lands and Realty—Rights-of-Way and Land Tenure

The geographic scope for cumulative impacts to BLM Lands and Realty—Rights-of-Way and Land Tenure would be the BLM-administered land within the LUPA Decision Area. This is

the largest area where the alternatives would result in changes to BLM lands and realty. Impacts to BLM lands and realty would only occur on BLM-administered land.

Impact LR-1: BLM land tenure adjustments could conflict with applicable BLM policies and regulations.

Direct impacts to BLM lands and realty would occur if utility-scale renewable energy projects permitted under the DRECP require land tenure adjustments that conflict with existing policies or regulations. Land tenure adjustments could include the acquisition, lease, exchange, or disposal of BLM lands. None of the projects listed in Table IV.25-1 would conflict with applicable BLM policies and regulations so they would not combine with the projects permitted under the DRECP. This is because the projects listed in Table IV.25-1 have already been approved and any conflicts with BLM policies and regulations were considered and resolved during the individual NEPA analysis for these projects. Projects listed in Table IV.25-2, IV.25-3, and IV.25-4 that are on or would cross BLM lands could conflict with BLM policies and regulations in that they could require a land use plan amendment. Many of the renewable projects listed in Table IV.25-2 and IV.25-3 are proposed in locations considered for DFAs so they would not combine with the DRECP DFAs and would avoid or minimize conflicts with existing BLM-administered lands. Some projects, such as the Stateline Solar Farm, are not located in DFAs and could combine to conflict with BLM policies and regulations. Each project would be considered on an individual basis and require a plan amendment to resolve any conflicts with BLM policies and regulations as happened for the Stateline Solar Farm. As such, there would be no cumulative effect.

Impact LR-2: Development on BLM land would conflict with existing land-use authorizations.

Development of utility-scale renewable energy facilities permitted under the DRECP may interfere with or require modifications to existing BLM utility ROWs or corridors. Each project would be subject to the rights of existing ROW holders, and BLM may not force changes in its existing ROW authorizations. The areas used by the projects listed in Tables IV.25-2, IV.25-3, and IV.25-4 would also exclude other incompatible land uses. For some projects, such as the Palen Solar Power Project and the Stateline Solar Farm, this would require modification of existing ROW because an existing transmission line crosses the proposed sites. Furthermore, some projects, such as the Stateline Solar Farm, require the BLM to consider the impact on other uses, as the project would be located within an existing utility corridor. For the projects listed in Tables IV.25-2 through IV.25-4, the BLM would consider the impact on a case-by-case basis. While the large number of projects listed in Tables IV.25-2, IV.25-3, and IV.25-4 could combine with renewable energy permitted under the DRECP to conflict with existing ROW authorizations, mitigation measures such as LR-2a

(require notification to ROW holders) and LR-2c (require legal access to public lands surrounding renewable facilities) would reduce the cumulative effects.

Impact LR-3: Development within designated exclusion areas would conflict with BLM regulations and policies.

Potential ROW exclusion areas permitted under the DRECP would include BLM-designated lands such as ACECs, Desert Wildlife Management Areas, NLCS lands, wilderness and wilderness study areas, grazing allotments, mineral lease areas, and recreation lands. These designations would establish conservation areas on BLM lands so they would protect exclusion areas and be managed as described under the LUPA in the DRECP. Where projects listed in Tables IV.25-1 through IV.25-3 would be located within exclusion areas, they would be analyzed in their NEPA specific documents on a case-by-case basis, such as the Stateline Solar Farm. Future development would be prohibited from the exclusion areas except as managed under the DRECP so development would not result in a cumulative effect on exclusion areas.

Impact LR-4: Conservation actions could prohibit existing authorized land uses.

There would be conservation actions under the No Action Alternative through the application of mitigation required for renewable energy projects (such as required habitat offsets) which would be considered on a case-by-case basis. As such, the No Action Alternative would contribute to a cumulative effect as in the other Alternatives listed below. The conservation designations under the DRECP would increase the acreage of existing conservation by over 6.1 million acres for the Preferred Alternative and Alternative 1, over 6.3 million acres for Alternative 2 and Alternative 3, and over 5.6 million acres for Alternative 4. This could overlap with BLM ROWs. Major BLM ROWs include roads, highways, telephone lines, leases for recreation and other public purposes, oil and gas facilities, water and gas pipelines, water facilities, communication sites, ditches, railroads, and fiber optic lines. Proposed CMAs and the DRECP CDCA Plan amendments provide for access and upkeep to existing and valid ROW. None of the projects listed in Tables IV.25-1 through IV.25-4 would be conservation actions on BLM-administered lands so they would not result in a cumulative effect. Other BLM management actions currently under way, or that may occur in the future, would consider the DRECP and all existing BLM management actions in their impact analysis and would ensure the management actions are consistent with BLM policies and multiple-use mandates.

IV.25.3.14 BLM Land Designations, Classifications, Allocations, and Lands with Wilderness Characteristics

The geographic scope for cumulative impacts to BLM land designations, classifications, and lands with wilderness characteristics (LWCs) would be the LUPA Decision Area. This is the largest area where the alternatives would result in changes to BLM lands and realty. Impacts to BLM land designations, classifications, and lands with wilderness characteristics would only occur on BLM-administered land.

Impact LD-1: Development and operation of renewable energy and transmission facilities would reduce the value of designated conservation areas.

Renewable energy facilities could result in potential direct impacts to NSHT Management Corridors and inventoried lands found to have wilderness characteristics and indirect impacts to wilderness study areas (WSAs), National Wild and Scenic Rivers, NLCS lands, ACECs, wildlife allocations, Special Recreation Management Areas (SRMAs), and open OHV areas. These impacts would be due to an increase in dust and noise during construction and to visual impacts during operations. Projects listed in Tables IV.25-1 through IV.25-4 could similarly result in potential direct and indirect impacts to other BLM designations. Many of the projects listed in Table IV.25-1 through IV.25-4 would be located in proposed DFAs, in particular in the DFAs in Eastern Riverside County, Imperial Valley, and the Tehachapi Mountain Range so the impacts to BLM designations would be in locations already considered as part of the DRECP. However, some projects, such as Bechtel Soda Mountain Solar Project located near a WSA or Stateline Solar Farm located near a wilderness area, are not located in DFAs and could combine with the projects permitted under the DRECP. Impacts to BLM sensitive land designations would result in a cumulative effect. The BLM is in the process of or would consider the impacts of these projects on a case-by-case basis and require mitigation or a project-specific land use plan amendment to reduce the cumulative effect.

Impact LD-2: Development and operation of renewable energy and transmission facilities would conflict with the existing management goals and objectives of designated conservation areas.

The action alternatives would not directly conflict with existing management goals and objectives of designated conservation areas. Development on DFA lands adjacent to or near designated conservation areas would indirectly affect the existing management goals and objectives, in particular the protection of scenic value. Development on inventoried lands found to have wilderness characteristics would degrade those characteristics; however, these lands would be reprioritized for renewable energy development and CMAs would be applied to reduce potential impacts. The projects listed in Tables IV.25-1 through IV.25-4

could result in direct impacts to designated conservation areas, including ACECs, where they overlap with these resources. Direct impacts would be minimal because the BLM works closely with developers to identify the most appropriate locations for renewable energy. These projects could indirectly impact BLM designations throughout the LUPA Decision Area. The BLM is in the process of or would consider the impacts of these projects on a case-by-case basis and require mitigation or a project-specific land use plan amendment to reduce the cumulative effect.

The No Action Alternative could directly impact areas managed for conservation, such as ACECs where the management of the conservation area allows for the development of some types of renewable energy. This future development could combine with impacts from the projects listed in Tables IV.25-1 through IV.25.4; however, most of the projects identified in these tables would not be located on areas managed for conservation because BLM works with developers to direct them away from such lands. In some instances, existing or proposed renewable projects listed in Tables IV.25-1 and IV.25-4 would impact conservation areas, such as the Desert Harvest Solar Farm and the Desert Sunlight Solar Farm, both of which impact a Northern and Eastern Colorado Desert Coordinated Management Plan-designated wildlife habitat management area. However, such impacts are rare and the developers were required to mitigate for any impacts, reducing the cumulative direct effects.

Indirect effects under the No Action Alternative would be the same as for the action alternatives.

IV.25.3.15 Mineral Resources

The geographic scope for cumulative analysis to minerals is the entire LUPA Decision Area and transmission line corridors.

Impact MR-1: Plan components would reduce or improve access to and development of known and future mineral resources.

The renewable energy and conservation areas permitted under the DRECP would affect mineral resources by restricting access to or development of areas of known mineral resources. The renewable energy developed by all the alternatives would only minimally impact known mineral resources, including geothermal, high potential mineral areas, high priority mineral and energy locations, rare earth element areas, locatable minerals, leasable mineral areas, and mineral material areas. The conservation and recreation designations would potentially affect larger amounts of known mineral areas—between 32% and 81% of high potential mineral areas for all action alternatives. Approximately 32% of high potential mineral areas are located on existing conservation lands (i.e., the No Action Alternative).

All action alternatives would potentially impact no high priority potential mineral areas. Approximately 47% of rare earth element areas are located within existing conservation lands (i.e., the No Action Alternative). The action alternatives conservation designations would affect between 57% and 89% of rare earth element areas. The action alternatives conservation designations would impact between 30% and 92% for locatable mineral areas.

For all alternatives, exploration and access to minerals on BLM conservation lands on would continue following the area-specific management plan, including disturbance caps. Mitigation measures typically required for mining would reduce some disturbance impacts of mining, allowing for more exploration and access. In addition, unpatented mining claims are subject to valid existing rights.

Some of the projects listed in Tables IV.25-1 through IV.25-4 would also impact mineral resources. For example, the 29 Palms Training Land/Airspace Acquisition Project, Ocotillo Express, and Bechtel Soda Mountain Solar could impact high potential mineral areas. The Proposed 29 Palms Training Land/Airspace Acquisition Project would purchase patented and unpatented mines in the western expansion area and two iron ore mines. The project EIS found this impact to be less than significant because of the nearby areas designated as either high or moderate potential for occurrence in the surrounding areas. However, when combined with the projects permitted under the DRECP this would result in a cumulative impact. With implementation of Alternative 2 and Alternative 3, the nearby iron ore within the NLCS would not be available for mining, resulting in a cumulative impact. The Ivanpah SEGS and Stateline Solar Farm could impact access to high potential mineral areas.

Some of the solar projects listed in Tables IV.25-1 through IV.25-3 in Imperial County would potentially combine with the renewable energy DFAs permitted under the DRECP to impact the known geothermal resource areas (KGRAs). The Wistaria Ranch Solar, Calexico Solar Farm, and Mount Signal Solar—all located in or near the Heber KGRA and the Midway Solar I and II—would potentially impact the Salton Sea KGRA.

To reduce the cumulative effects to the extent practicable, measures are included for the action alternatives. For example, CMAs would designate high potential mineral land areas on DRECP maps recognizing these lands as probable future development areas. In addition, existing authorized mineral and energy operations would be allowed to continue or expand. Similar actions would likely be required for projects listed in Table IV.25-1 through IV.25-4. to reduce the cumulative effects to the extent feasible.

IV.25.3.16 Livestock Grazing

The cumulative geographic scope includes the grazing allotments within the LUPA Decision Area as well as the Farmland Mapping and Monitoring Program (FMMP)-designated non-

BLM grazing lands. This is because livestock grazing would not occur outside of these designated areas.

Impact LG-1: Alternative would result in loss of livestock grazing acres.

Renewable energy projects permitted under the DRECP could result in the loss of between 4,450 acres (Alternative 4) and 14,300 (Preferred Alternative) of BLM Grazing Allotments. Grazing leases would likely need to be canceled, modified, or reduced in areas where solar and geothermal projects are developed. If full allotments are not made unavailable and grazing continues in undeveloped portions of allotments, there would still be a loss of forage in areas cleared of vegetation. Renewable energy development may result in adverse socioeconomic impacts to ranchers and grazing communities from the modification or loss of grazing privileges, particularly where grazing has been a longstanding and important tradition.

Between 1.3 and 2.4 million acres of BLM Grazing Allotments would be included in the conservation and recreation designations. NLCS and ACEC management on BLM lands would allow for livestock grazing in many instances so it would not impact grazing. The BLM would also designate SRMAs that overlap with grazing allotments. Where SRMA management actions restrict or eliminate grazing, they would result in adverse impacts.

Projects listed in Tables IV.25-1 through IV.25-4 could also result in the loss of grazing, including the Ivanpah SEGS and Stateline Solar Project that are located within the Clark Mountain Allotment, Southern Owens Valley Solar Ranch and Eastern Kern County Land Acquisition within the Taylor Grazing Act – California District 1, among others. Renewable energy permitted as part of Phase II of the DRECP and associated land conservation on private lands could also result in the loss of grazing. Loss of additional grazing would combine with the loss of grazing land resulting from the projects permitted on BLM land under the DRECP to result in a cumulatively considerable impact. Implementation of measures, such as the CMAs relevant to livestock grazing and typical mitigation would minimize impacts on livestock grazing, would reduce these effects to the extent practicable.

Impact LG-2: Alternative would involve other changes in the existing environment, which due to their location or nature, would impair use of adjacent grazing lands.

Renewable energy and transmission development permitted under the DRECP would have a variety of impacts on adjacent grazing lands. Fugitive dust from construction would reduce forage palatability. Construction activities may spread noxious weeds and increase wildland fires. Livestock may also be adversely affected by construction noise and may concentrate in areas farther from construction activities, resulting in adverse impacts to vegetation communities and forage (over-grazing). Increased traffic would increase the potential for livestock injury or death from vehicle collisions, and increased access to grazing areas

could cause potential problems for grazing management through interference with pasture gates. Construction activities could also lead to soil and water contamination that would harm forage and livestock. These projects would be primarily limited to the construction period and would be greatly reduced during the operational periods.

Projects listed in Table IV.25-1 through IV.25-4 and renewable projects permitted under Phase II of the DRECP would similarly impact grazing activities. In some instances, such as with Ivanpah SEGS and Stateline Solar Project, the potential to cumulatively impact grazing would occur only under the No Action Alternative because there would be no development permitted under the DRECP in the Clark Mountain Allotment under the action alternatives. Because the impact would occur primarily during the construction period and the majority of the projects listed in Tables VI.25-1 through IV.25-4 would be operational by the time the projects permitted under the DRECP were under construction, the impact would not combine to be cumulatively adverse. Implementation of measures such as the CMAs relevant to livestock grazing would further minimize impacts on livestock grazing.

IV.25.3.17 Wild Horses and Burros

The geographic scope for cumulative impacts to wild horses and burros would be the Herd Management Areas (HMAs) and the herd areas (see Volume III, Figure III.17-1). These areas are primarily along the California-Nevada border near the Chicago Valley in Inyo County, in the Panamint Valley in Inyo County, north of Ridgecrest, near the Ivanpah Valley, and in the Mojave National Preserve in San Bernardino County, near the intersection of Highway 95 and SR-62, across the Colorado River from Lake Havasu, and near the Chocolate Mountains.

No HMAs or herd areas are along the transmission routes outside the DRECP area so there are no impacts to these resources and no potential for cumulative effects.

Impact WH-1: Plan components would result in loss of forage for wild horses and burros.

For the No Action Alternative and Alternatives 1, 2, 3, and 4 there is potential for renewable energy and transmission to result in loss of forage for wild horses and burros if projects were sited within the HMAs. The No Action has 12,000 acres of HMAs and herd areas that overlap with available areas. The Preferred Alternative has approximately 6,900 acres of DFAs that overlap with HMAs and herd areas. The acreage of overlap between DFAs and HMAs and herd areas is 3,300 for Alternative 1, 7,200 for Alternative 2, 2,200 for Alternative 3, and 4,100 for Alternative 4. Actual loss of HMAs and herd areas is anticipated to be less than this

For all alternatives, there is potential for renewable energy and transmission permitted under the DRECP to result in the loss of forage for wild horses and burros if projects were sited on

appropriate foraging habitat herd areas. Only a few of the cumulative projects, including the Ivanpah and Stateline Solar Farm, are or would be sited within HMAs or herd areas. Similarly, little of the development anticipated in the counties within the DRECP is forecasted in these areas (see Section IV.25.2.2). Where cumulative projects are proposed in HMAs or herd areas, they would contribute to the loss of forage for wild horses and burros. CMAs and typical mitigation would reduce the cumulative impacts to the extent practicable.

Impact WH-2: Plan components would result in displacement of wild horses and burros.

For the all alternatives there is potential for renewable energy and transmission to result in displace of wild horses and burros if projects were sited within the HMAs. Alternatives 1, 3, and 4 have fewer than 200 acres of HMAs that overlap with DFAs.

Under all alternatives, there is potential for renewable energy and transmission permitted under the DRECP to be sited within herd areas and displacing the wild horses and burros within those areas. Only a few of the cumulative projects, including the Ivanpah and Stateline Solar Farm, are or would be sited within HMAs or herd areas and could combine to result in a cumulative displacement. Little of the development anticipated in the counties within the DRECP is forecasted in these areas (see Section IV.25.2.2). CMAs and typical mitigation would reduce the cumulative impacts to the extent practicable.

Impact WH-3: Plan components would reduce access to wild horse and burro habitat or require relocation.

Construction of renewable energy projects permitted under the DRECP may fragment wild horse and burro rangeland habitat, or block access of important habitat features, within HMAs and reduce the long-term sustainability and quality of the habitat and/or forage. Only a few of the cumulative projects, including the Ivanpah and Stateline Solar Farm, are or would be sited within HMAs or herd areas and could combine to result in a cumulative fragmentation. Little of the development anticipated in the counties within the DRECP is forecasted in these areas (see Section IV.25.2.2). CMAs and typical mitigation would reduce the cumulative impacts to the extent practicable.

Impact WH-4: Plan components would result in injury, harassment, or increased mortality due to construction or operations and maintenance activities.

Construction and decommissioning activities would result in fugitive dust created by construction vehicles that could reduce road visibility and increase the probability that wild horses or burros could be either wounded or killed by vehicle traffic during these activities (generally short-term impact). Operations and maintenance activities may result in long-term disturbance, injury, or harassment of wild horses and burros by vehicles and

activity noise along roadways and other rights-of-way used to access facilities. Only a few of the cumulative projects, including the Ivanpah and Stateline Solar Farm, are or would be sited within HMAs or herd areas and could combine to result in a cumulative injury, harassment, or increased mortality under the No Action Alternative. Little of the development anticipated in the counties within the DRECP is forecasted in these areas (see Section IV.25.2.2).

IV.25.3.18 Outdoor Recreation

The geographic scope for cumulative impacts to outdoor recreation is the LUPA Decision Area, and the Outside the DRECP area transmission corridors.

Impact OR-1: Plan components could enhance or degrade recreational use.

Cumulative impacts to recreation would be exclusion of recreation use from areas currently used for recreation and indirect effects on recreation from visual or other indirect effects.

Exclusion of Recreation Use. The development of renewable energy facilities permitted through the DRECP would exclude recreational use from those areas, displace recreationists, and diminish recreational opportunities. Development of solar and geothermal facilities would exclude recreational use from the entire footprint as they would generally be fenced and inaccessible to recreationists. Some types of recreation, such as hiking or off highway vehicle (OHV) use, may be compatible with wind development due to the large open areas between wind turbines and because fencing may be around the wind turbines and infrastructure rather than the entire project area. Impacts of the projects listed in Tables IV.25-1 through IV.25-4 would be similar to those described for the DRECP renewable energy facilities. For example, the Ocotillo Express Project is located on BLM lands in an existing Special Recreation Management Area with many open OHV roads. While all the roads within the project boundaries were closed during construction, open OHV roads that were not directly impacted by the wind turbines were reopened after the construction had finished. Other projects such as the Proposed 29 Palms Training Land/Airspace Acquisition Project would contribute to the cumulative direct loss of recreation areas, as the proposed expansion overlaps with the Johnson Valley OHV Area.

Overall, taken together, the loss of recreational opportunity from the renewable energy projects permitted by the DRECP, the projects listed in Tables IV.25-1 through IV.25-4, the benefit from the SRMA designations, and the recreation plans and land acquisition in Kern County, the cumulative impacts of the DRECP to recreation would be minimal.

Indirect Cumulative Effects on Recreation. Renewable energy or transmission infrastructure permitted under the DRECP would result in noise, dust, and traffic that would disturb recreationists such as hikers, campers, hunters, or birders. Noise, dust, and

traffic would be greatest during construction and decommissioning of the projects. Construction and operational activities would also affect the visual experience of recreationists due to the industrial nature of large construction staging areas and the renewable energy facilities. Renewable energy facilities would substantially impact recreational areas that are destinations for solitary or backcountry recreation. Many of the projects listed in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP would have similar indirect effects to recreation, in particular to the visual experience of recreationists. While this is true for many of the recreation projects listed in Tables IV.25-1 through IV.25-3, it is also true of larger infrastructure projects such as the Briggs Mine Expansion and the Eagle Mountain Pumped Storage project located immediately adjacent to National Parks, and such projects would be within the viewscape of recreationists in the parks. Where the projects listed in Tables IV.25-1 through IV.25-4 and renewable projects permitted under Phase II of the DRECP require night lighting for safety and security purposes, this could cumulatively impact night skies and stargazing. For example, the Devers-Palo Verde No.2 project requires night lighting along portions of the route. This light could combine with the night lighting likely required at the Palen SEGS project or other renewable projects permitted under the DRECP near Desert Center to cumulatively effect stargazing from Joshua Tree. The cumulative effect would be considerable.

Impact OR-2: Plan components could enhance or degrade access to lands managed for recreation.

The development of renewable energy under the DRECP could require use of between 6,000 acres (Alternative 1) to almost 12,000 acres (No Action Alternative) of lands managed for recreation. If these lands were fenced, such as would be the case for solar projects (both photovoltaic and thermal), the fences would decrease access to such lands and could result in the closure of roads used for off-highway recreation. In addition, increased traffic during construction could degrade access roads or result in temporary closures. Projects listed in Tables IV.25-1 through IV.25-3 and renewable project permitted under Phase II of the DRECP would also require fencing and could contribute to the cumulative decreased access to recreational areas. Multiple projects including the Desert Sunlight Project require the closure of open roads, which contributes to the cumulative loss of recreation access.

Impact OR-3: Plan components would enhance management of focus areas for recreation.

The DRECP LUPA would designate over 3.6 million acres managed for recreation for the Preferred Alternative, over 2.8 million acres for Alternative 1 and Alternative 3, and over 2.7 million acres for Alternative 2 and Alternative 4. This would be a direct benefit to recreation in the DRECP and CDCA. Projects listed in Table IV.25-4 including the Ocotillo

Wells State Vehicular Recreation Area General Plan, Rasor OHV Recreation Area Planning, and Eastern Kern County Land Acquisition would plan for actions needed to develop and sustain recreation in these areas, including OHV recreation opportunities. These projects would result in a substantial cumulative beneficial effect to recreation. The No Action Alternative would not designate any new areas managed for recreational use so it would have no impact on areas managed for recreation. The No Action Alternative would retain over 1.9 million acres of land currently managed for recreation.

IV.25.3.19 Transportation and Public Access

The geographic scope for cumulative impacts to outdoor recreation is the LUPA Decision Area, and the Outside the DRECP area transmission corridors.

Impact TR-1: Plan components would modify local circulation patterns or degrade the performance of the local road network.

During construction of renewable projects and transmission permitted under the DRECP, the movement of other equipment and materials to the site during construction would cause a small decrease in the level of service of local roadways. Transportation activities during renewable energy production would involve commuting workers, material shipments to and from the facility, and on-site work and travel. The impact on the local transportation network from transportation activity during renewable energy production and operation would be minimal.

The projects listed in Tables IV.25-1 through IV.25-4, renewable projects permitted under Phase II of the DRECP, as well as the development projected in Section IV.25.2.2 would also result in an increase in transportation and a corresponding decrease in the level of service of local roadways. Projects listed in Tables IV.25-1 through IV.25-3, the renewable energy projects, would primarily result in impacts to transportation during construction. The construction period of the majority of the projects listed in Tables IV.25-1 through IV.25-4 would not overlap with the construction of projects permitted under DRECP so these projects would not result in substantial cumulative impacts to transportation. Some projects listed in Table IV.25-4, in particular the mining projects, would require movement of trucks during operations and could overlap with the construction of projects permitted under the DRECP; however, these would be a much smaller subset of the cumulative projects. Development projected in the counties within and outside the DRECP would also increase transportation and combine with the project permitted under the DRECP to result in cumulative effects on transportation. This is especially true in areas where DFAs are in closer proximity to urban areas most likely to see increased growth such as near Lancaster and Victorville.

Impact TR-2: Plan components would alter the availability or accessibility of BLM routes of travel.

Development of renewable energy projects and transmission permitted under the DRECP would disrupt the accessibility of lands along local roads or preclude public access to lands surrounding the renewable energy project sites. Closure of large sites would decrease the availability of BLM routes of travel and impede travel to or from off-site locations. Typical mitigation is available to emphasize use and maintenance of existing BLM roads and to provide alternate replacement routes to ensure continued access to previously accessible public lands.

Renewable energy projects listed in Tables IV.25-1 through IV.25-3 could also disrupt the accessibility of lands along local roads and preclude access to lands surrounding the renewable energy project sites. This would be primarily true for solar and geothermal projects that are fenced, such as the Desert Sunlight Solar Farm that required the closure of some BLM open routes. Some wind projects, such as the Ocotillo Express Project, retained open roads through the project site after construction was finished. Most projects listed in Table IV.25-4 and the residential and commercial development projected in Section IV.25.2.2 would not alter the availability or access of BLM routes of travel. The exception is the Proposed 29 Palms Training Land/Airspace Acquisition Project that would alter BLM routes of travel and could combine with the loss of route of travel caused by the projects permitted under the DRECP to result in a cumulative effect. CMAs and typical mitigation would reduce the cumulative effects to the extent practicable.

Impact TR-3: Plan components would result in substantial traffic volumes on highway segments designated as part of a Congestion Management Plan (CMP).

Congestion management programs include the principal roads, highways, and interstate highways of the DRECP area. The renewable energy projects and transmission permitted under the DRECP would affect the transportation infrastructure of the DRECP area and along the transmission corridors, which is generally outside of urban environments and the focus of congestion management programs. Renewable energy facility development would generate traffic to and from project sites, but the traffic levels would not be substantial when compared to the road network's capacity. Accordingly, development under the DRECP would not substantially affect any principal roads or highway segments designated as part of a Congestion Management Plan.

Cumulative projects listed in Tables IV.25-1 through IV.25-4 and renewable projects permitted under Phase II of the DRECP would similarly affect the transportation infrastructure within the DRECP area and along the transmission corridors. The renewable energy development listed in Tables IV.25-1 through IV.25-3 would also generate traffic to

and from project sites, but the traffic levels would not be substantial when compared to the road network's capacity. The projects would generate traffic primarily during construction. Development listed in Tables IV.25-1 through IV.25-3 would not substantially affect any principal roads or highway segments designated as part of a Congestion Management Plan. Only a few projects listed in Table IV.25-4, the renewable projects permitted under Phase II of the DRECP, and the development forecasted in Section VI.25.2.2 could affect principal roads or highway segments designated as part of a Congestion Management Plan, in particular large-scale residential and commercial development. Such development would require a traffic study and consideration of a Congestion Management Plan and would be required to implement mitigation such as implementing a traffic plan, coordinating road improvements with local authorities, or implementing traffic control measures reducing the cumulative effects.

Because development under the DRECP would not substantially affect any principal roads or highway segments designated as part of a Congestion Management Plan it would not contribute to a cumulative effect.

Impact TR-4: Plan components would increase hazards and the risk for a traffic incident or inhibit emergency response.

Development of renewable energy projects and transmission permitted under the DRECP would require use of slow-moving heavy-duty trucks and would obstruct traffic in a manner that could inhibit emergency response temporarily during construction phases. Heavy construction traffic using emergency routes could adversely affect emergency service response times. New road hazards could also be introduced as a result of creating new site entry and egress or by inadvertently causing damage to roadway surfaces. The effects of road improvements to ensure site access or potential damage to roadways would be subject to the supervision of local jurisdictions to ensure that a site does not increase the potential for unsafe movement of vehicles. Implementing traffic controls and measures to avoid or repair wear and tear from construction traffic would avoid the adverse effects of this impact.

Cumulative projects listed in Tables IV.25-1 through IV.25-3 would also require use of slow-moving heavy-duty trucks and would obstruct traffic in a manner that could inhibit emergency response temporarily during construction phases. Some projects listed in Table IV.25-4 would require use of heavy-duty trucks during operations, such as the expanded mining projects. However, the number of trucks used would be much fewer and would be dispersed throughout the entire DRECP area and transmission corridor routes. In addition, projects that require large use of trucks during operations typically are required to adhere to a traffic management plan or designated routes.

The construction phases of the projects listed in Tables IV.25-1 through IV.25-3 are not expected to overlap with the construction phases of the projects permitted under the DRECP. For this reason, DRECP projects would not contribute to a cumulative impact on increased hazards and the risk for a traffic incident or inhibit emergency response.

IV.25.3.20 Visual Resources

The geographic scope of the cumulative visual effects would be the LUPA Decision Area as well as the Outside the DRECP area transmission line corridors. The LUPA management actions within the CDCA but outside the DRECP would not themselves result in visual impacts but would manage some areas to allow for modifications to the viewscape.

Impact VR-1: Visibility of activities, materials, equipment, dust, and construction night lighting would result in short-term diminished scenic quality.

During construction and decommissioning of renewable projects permitted under the DRECP, activities and equipment visible from residences, public roads, and public preserves would result in short-term diminished scenic quality for viewers. Examples include dust and exhaust emissions, removal of vegetation during site clearing, contouring and grading, presence of vehicles and equipment, mobilization and demobilization activities, material delivery and staging, assembly of components, site lighting, and construction and later removal of structures. While many of the projects listed in Tables IV.25-1 through IV.25-4 would have similar construction activities resulting in impacts to scenic quality, few of them could combine with the construction of projects permitted under the DRECP to result in a cumulative short-term diminished scenic quality. This is because the majority of the projects listed in Tables IV.25-1 through IV.25-4 would have finished construction prior to the development of renewable energy permitted under the DRECP. Some projects, such as the California High-Speed Rail have anticipated lengthy construction time frames so could overlap with construction of renewable energy in the West Mojave and Eastern Slopes ecoregion subarea. Renewable projects permitted under Phase II of the DRECP would be anticipated to be developed over the same time frame as the projects on BLM land so could overlap with construction of renewable energy throughout the DRECP. In addition, renewable energy projects permitted in DFAs near areas that have anticipated growth projections (e.g., townsites in unincorporated Imperial County or the Tehachapi Mountain Communities in Kern County) could result in cumulative impacts due to construction of residential or commercial development required for the projected population growth. CMAs and typical mitigation that would require minimizing night lighting impacts during construction would likely be required for the cumulative list of projects in Tables IV.25-1 through IV.25-4 and would reduce the cumulative effects of construction.

Impact VR-2: The presence of project components and disturbance would result in long-term diminished scenic quality.

Renewable energy facilities permitted under the DRECP would require equipment, structures, fencing, roads, and other elements to operate a facility that would have a long-term adverse effect on the visible landscape. Areas of persistent surface and vegetation disturbance and the presence of structures would create visual contrast in form, line, color, and texture as compared to pre-project conditions. Depending on viewer location, physical elements introduced by a project could block views or create skylining (silhouetting against the sky). Physical elements would be most visible for projects with large infrastructure such as wind projects or solar power tower projects. Even after project removal and site reclamation are completed, visual contrast would remain. The structure, size, and industrial character of utility-scale renewable energy and transmission facilities during operation and maintenance—as well as any associated glare, reflectivity, and lighting—would visually contrast with surrounding undeveloped land and result in long-term diminished scenic quality.

Many of the projects listed in Tables IV.25-1 through IV.25-4 and renewable energy projects permitted under Phase II of the DRECP would have similar long-term impacts as those described for the DRECP. Areas such as the West Mojave and Eastern Slopes ecoregion subarea already have more than 20 operating wind and solar projects with structures that dominate the skyline. The area near Desert Center and Imperial County would also experience a substantial introduction of industrial projects due to the introduction of dozens of renewable projects in these areas. The Ivanpah solar project is already a major source of glare and reflectivity in that area. The majority of the projects listed in Table IV.25-4 would be less visible than the renewable energy projects listed in Tables IV.25-1 through IV.25-3 because they would be shorter in nature and in many instances do not introduce the same scale of industrial facilities. This notwithstanding, projects such as the Devers-Palo Verde No. 2, or Tehachapi Renewable Transmission Project would contribute to the diminished scenic quality and contribute to a cumulative visual impact.

LUPA conservation designations would generally receive a higher level of protection for visual resources than currently exists, so the DRECP would not contribute to an adverse impact on visual resources in these areas.

IV.25.3.21 Noise and Vibration

The geographic scope for cumulative analysis for noise is generally within approximately one mile of a project site including truck routes. This is because noise impacts are generally localized. Because renewable energy projects could be built anywhere within DFAs, the cumulative geographic scope for noise is anywhere within one mile of the DFAs and truck

routes for the entire DRECP and along the transmission corridors outside the DRECP area. The LUPA designations would generally limit the extent of future development, and therefore would not contribute to cumulative noise impacts from development activities.

Impact NV-1: Plan components would generate noise that would adversely affect sensitive receptors.

Renewable energy projects permitted under the DRECP would generate noise during construction and operation. Construction equipment used for the renewable development depends on the technology but is anticipated to be between approximately 80 to 88 dBA L_{eq} (equivalent level) 50 feet from the center of equipment activity (see Section IV.21.3). Blasting may be required for wind turbine foundations and may result in greater noise impacts. Renewable energy technologies and transmission permitted under the DRECP would result in long-term operational impacts due to operational and maintenance activities. All renewable energy operations would generate noise from employee vehicles accessing the site, power inverters, and other electronic infrastructure. In addition, wind turbines can have an aerodynamic noise that generates a whooshing or pulsing effect.

Multiple projects listed in Tables IV.25-1 through IV.25-4 are located within the DFAs or adjacent to them and would generate similar noise as described for the renewable energy projects permitted under the DRECP. Many of the cumulative projects have already been approved or are in the environmental review process, so their construction time frame would not overlap with projects approved under the DRECP. Projects permitted under Phase II of the DRECP could have construction time frames that overlap with projects on BLM land. Additionally, for the Preferred Alternative, Alternative 2 and Alternative 4, the Blythe Solar Power Project, Desert Harvest, Desert Sunlight, FSE Blythe 1, Genesis NextEra, McCoy Solar Energy Project, Palen Solar Power Project, and the Palo Verde Mesa project would all be within the DFAs in eastern Riverside County and would combine to result in cumulative operational impacts to noise. Similarly, the Alta East, Rising Tree, Alta, Alta Infill, Windstar, Avalon, Morgan Hills, Catalina, Pacific Wind, and PdV projects among others, would be located within the DFAs in the West Mojave and could combine to generate operational noise impacts. In Imperial Valley, Calxico Solar Farm, Campo Verde Solar, Centinela Solar, East Brawley Geothermal Project, Hudson Ranch, Imperial Solar Energy Center West and South, the Imperial Valley Solar Company, Ocotillo Sol, Silverleaf Solar, Wistaria Ranch Solar, and Seville Solar Farm Complex would all be located within DFAs and could result in cumulative operational noise impacts. Cumulative noise impacts would be reduced through compliance with local laws and regulations and implementation of typical mitigation such protect sensitive receptors from noise, implement noise reduction techniques, and protect residences from wind turbine noise.

Impact NV-2: Plan components would generate ground-borne vibrations that adversely affect sensitive receptors.

Renewable energy technologies and transmission permitted under the DRECP would generate vibrations during construction from the movement of heavy equipment, earth movement, pile driving, rock breaking, and explosives blasting. These impacts would be short-term and limited in nature. Wind, geothermal, and solar thermal permitted under the DRECP include the use of turbines during operation and have the potential to result in long-term vibrations. However, mechanical equipment typically used would be well balanced and designed to avoid substantial vibration levels. Monitoring systems are usually installed as well. Vibrations above the threshold of detectability would not be expected beyond the project boundary so this would not result in cumulative ground-borne vibrations.

Impact NV-3: Plan components would generate noise or ground-borne vibration levels in conflict with local standards.

Renewable energy technologies and transmission permitted under the DRECP would result in noise and vibration impacts from construction and operation, which would potentially conflict with local standards and impact local communities. At the time that specific renewable energy projects are proposed, a detailed analysis of noise and land use conflicts would be completed as part of the project-level environmental review and would require the project to comply with local standards. The cumulative list of projects listed in Tables IV.25-1 through IV.25-4 has already or would undergo an environmental review that would include consideration of local standards. Each project would be required to comply with the local standards or mitigate the project, so there would not be a cumulative impact on conflicts with local standards.

IV.25.3.22 Public Health, Safety, and Services

The geographic scope for cumulative analysis for public safety and services is generally within the renewable energy project boundaries and the access routes and transmission route. This is where public safety and service impacts are generally localized. Because renewable energy projects could be built anywhere within DFAs, the geographic scope for cumulative impact analysis for public safety and services is anywhere within the DFAs and access routes for the entire DRECP and along the transmission corridors outside the DRECP area. The DRECP would limit future development within the LUPA conservation designations, so the Plan would not contribute to cumulative impacts on public safety and services impacts in those areas.

Impact PS-1: Plan components would involve hazardous materials or conditions that could result in a hazard to the public or environment.

All phases of renewable energy projects permitted under the DRECP would involve the transport, use, storage, and disposal of hazardous materials such as fuels, lubricating oils, hydraulic fluids, glycol-based coolants, lead-acid batteries, solvents, paints, cleaning agents, coatings, and herbicides. Solar facilities could also involve the use of the toxic elemental metal cadmium, Heat Transfer Fluid, dielectric fluids, TES salts (sodium and potassium nitrates), and steam amendment chemicals.

Construction, operations, and decommission activities of renewable energy permitted under the DRECP would involve movement of soil materials. Valley Fever is spread through the air and if soil containing the Valley Fever fungus is disturbed by construction, natural disasters, or wind, the fungal spores can be released into the air. Cooling water associated with solar thermal and geothermal facilities may become contaminated with bacterial growth and potentially contain *Legionella* bacteria.

Renewable energy sites may have existing contamination that could pose a risk to workers and the environment during site characterization, construction, operations, and decommissioning. Potential hazardous material impacts from projects permitted under the DRECP are increased risks of fires, human health impacts, and environmental contamination. This could lead to environmental impacts related to biological resources, surface water, groundwater, air quality, agriculture and grazing, and recreation.

The projects listed in Tables IV.25-1 through IV.25-4 would use many similar types of hazardous materials during construction, in particular fuels, lubricating oils, hydraulic fluids, glycol-based coolants, lead-acid batteries, solvents, paints, cleaning agents, coatings, and herbicides. Some of the projects would also result in a substantial amount of ground disturbance in areas where the Valley Fever spore is known to occur. NextLight Antelope Valley was required to stop construction due to concerns about dust management and Valley Fever until additional dust mitigation was put in place.

Cumulative impacts resulting from hazardous materials would only occur if projects were in near vicinity of each other and under construction at the same time. This includes cumulative impacts due to Valley Fever. Ground disturbance is stabilized after construction, reducing the risk of airborne fungal spores. Many of the projects listed in Tables IV.25-1 through IV.25-4 would be expected to have completed construction prior to construction of projects permitted under the DRECP. Some larger projects, such as the California High-Speed Rail and residential or commercial development projected in county General Plans could occur at the same time as projects permitted under the DRECP, which results in a cumulative impact. Renewable projects permitted under Phase II of the DRECP

could also result in cumulative impacts. Implementation of CMAs and typical mitigation that would implement hazardous material and waste minimization measures would reduce the DRECP's contribution to these cumulative impacts. This mitigation includes providing dust suppression measures to reduce potential exposure to Valley Fever spores.

Impact PS-2: Plan components could result in an airport or air traffic safety hazard.

Airport safety issues resulting from projects permitted under the DRECP include the operation of tall structures such as solar power towers and cooling towers for geothermal and solar thermal, and turbines for wind facilities. Solar panels and mirrors could produce glare, and solar thermal and geothermal facilities could produce steam and heat updrafts that might interfere with aircraft safety. The presence of transmission towers and conductors where aircraft are likely to fly is an air traffic safety concern. Airport safety hazard impacts are greatest where towers and lines would be located within 2 miles of an airport or within an Airport Land Use Compatibility Plan area.

Projects listed in Tables IV.25-1 through IV.25-4 and renewable development permitted under Phase II of the DRECP would result in impacts to airport safety that are similar to those described for the projects permitted under the DRECP, and would result in a cumulative impact on airport safety and air traffic. In particular, the Ivanpah SEGS and Palen SEGS project and the existing and proposed wind projects in West Mojave would locate tall structures throughout the DRECP. Projects such as the Ivanpah SEGS and Genesis Solar Project would introduce a substantial number of mirrors that could produce glare. Transmission projects listed in Table IV.25-4 could also contribute to cumulative impacts to air traffic including the Sunrise Powerlink Project and Devers-Palo Verde No. 2 transmission line. Each project listed in Tables IV.25-1 through IV.25-4 has completed or is in the process of completing an environmental review that includes consideration of air traffic safety and if consultation with the Federal Aviation Administration if required. Mitigation measures such as safety beacons and marker balls are regularly required for structures over a certain height to reduce the cumulative impact on air traffic. In addition, the projects located throughout the DRECP area would be less likely to combine to result in a cumulative impact on air traffic.

Impact PS-3: Plan components would create an increased risk of wildland fire.

The construction activities permitted under the DRECP and expanded areas of development would increase the interface of wildlands and development. Renewable energy facilities could increase the potential for wildland fire hazards through clearing of vegetation, the use of hazardous materials, and the introduction of people, equipment, and vehicles into remote areas. The difficulty of extinguishing fires in solar panel fields and at

the tops of the wind turbines could spread fires more quickly. Mitigation would require a Fire Management and Protection Plan to reduce the impact.

All projects listed in Tables IV.25-1 through IV.25-4 and renewable development permitted under Phase II of the DRECP would also increase the interface of wildlands and development and could increase the potential for wildland fire hazards, resulting in a cumulative increased risk of wildland fire. The projects listed in Tables IV.25-1 and IV.25-4 would require emergency response plans, fire management plans, and standard protocols for industrial facilities. These plans would likely be effective in ensuring no cumulative effects related to emergency response or fire.

Impact PS-4: Plan components would create a demand for new or expanded fire and emergency service facilities.

Construction and operation of new renewable energy facilities permitted under the DRECP would result in additional police and fire service calls. As highlighted in Volume III, Chapter III.22, much of the development would be near existing fire stations and existing police stations and could affect the ability of responders to handle additional calls. Responders may need additional personnel or equipment.

Cumulative projects listed in Tables IV.25-1 through IV.25-4 and renewable development permitted under Phase II of the DRECP would also potentially increase the need for emergency service facilities—combined with a potential to overwhelm emergency response providers if two emergencies occur at the same time—would result in a cumulative impact. Typical mitigation would likely be required for each project and require coordination with emergency responders to determine if they are able to adequately respond and provide support for emergencies.

Impact PS-5: Plan components would generate solid waste and result in a need for new or expanded landfills.

Construction, operations, maintenance, and decommissioning activities of renewable energy and transmission projects permitted under the DRECP would generate solid waste under all the alternatives considered in the EIS. The demand for landfill space or recycling would be especially intense during decommissioning, when thousands of acres of industrial materials (steel, polycarbonate, wiring, pipes) would be removed.

The cumulative projects listed in Tables IV.25-1 through IV.25-4 and renewable development permitted under Phase II of the DRECP would result in similar types of construction waste. Similarly, the renewable projects listed in Tables IV.25-1 through IV.25-3 and renewable development permitted under Phase II of the DRECP would generate thousands of acres of industrial materials during decommissioning if the

materials were not recycled. To reduce the impact, mitigation measures such as diverting project-related nonhazardous, nonrecyclable, and nonreusable construction and operation waste to landfills with adequate capacity if local landfills are near capacity would reduce the cumulative effects.

IV.25.3.23 Socioeconomics and Environmental Justice

The geographic scope for cumulative impacts of socioeconomics and environmental justice would be the LUPA Decision Area and transmission corridors. Effects of socioeconomics would likely be county specific because local jurisdictions or districts provide public services and utilities, and the regional labor force would be expected to come primarily from counties within the LUPA Decision Area and from neighboring counties.

Impact SE-1: Plan components may induce substantial population growth, either directly or indirectly.

Construction of renewable energy and transmission projects permitted under the DRECP will bring workers to the communities proximate to and serving individual project locations. This is because construction of utility-scale renewable energy and transmission projects typically requires large numbers of workers, many of whom have specialized skills. The development of any alternative will result in construction workers seeking to secure transient housing in nearby rural communities proximate to future project sites. Given the existing numbers of available housing units and vacancy rates within the overall DRECP area, rental housing is available throughout the DRECP area. However, workers seeking shorter commutes to projects located near small rural communities may potentially affect the availability of transient accommodations (hotels, motels, recreational vehicle, and mobile home parks). The overall number of transient units is expected to be small in rural desert areas compared to what is available in larger nearby communities.

Future renewable facilities permitted under the DRECP are not expected to require large numbers of on-site operations and maintenance employees. Geothermal facilities typically require the most on-site employees during operation when compared to solar and wind technologies. While minimal, it is assumed that some permanent in-migration will occur from specialized operations and maintenance workers within rural desert areas. Such growth is not expected to exceed projected growth for DFAs in the local and regional study areas.

The cumulative projects listed in Tables IV.25-1 through IV.25-4 and renewable development permitted under Phase II of the DRECP would require similar large numbers of construction workers and result in an influx of workers. However, the majority of the projects in Tables IV.25-1 through IV.25-4 would not combine with the projects permitted

under the DRECP to result in a cumulative impact because projects would not have overlapping construction time frames. Therefore, the influx of workers would not be likely to overlap with those from the renewable energy projects and would not result in a cumulative impact. Projects listed in Tables IV.25-1, IV.25-2, and IV.25-4 are already operational, under construction, or under environmental review such that construction would be likely to begin in the near future. Projects in Table IV.25-3 have already begun the process of working with the agencies to develop their projects. After the decision on the DRECP, projects would begin the DRECP permitting process and would then begin the CEQA and NEPA process. As such, their construction schedules are unlikely to overlap.

It is likely that operation and maintenance employees from the projects listed in Tables IV.25-1 through IV.25-4 would overlap with the operation and maintenance employees working on projects permitted under the DRECP, but this number would be minimal. Growth due to employees at geothermal facilities, which typically require the most on-site employees, is included in the Imperial County growth projections. Imperial County is the area most likely to include this technology (see Section IV.25.2.2.1). This growth would not result in a cumulative impact.

Impact SE-2: Plan components may displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere.

As discussed in Section IV.23.3.2.1.1, it is possible that some minor level of residential purchases would be required for the amount of renewable energy and transmission development assumed under the DRECP. When considering the numbers of available housing units and vacancy rates in the DRECP area, it is unlikely that any residential relocations associated with development DFAs and necessary transmission infrastructure under any alternative would necessitate housing construction outside of regular growth occurring in the DRECP area. Some transmission corridors outside the DRECP area are adjacent to existing housing units. This is especially true in some of the more densely populated counties such as Los Angeles or San Diego. It may be challenging to accommodate a large transmission line given the existing conditions and projected growth (see Section IV.25.2.2). However, as discussed in Section IV.23.3, if an existing corridor would not accommodate a transmission line, the line would be routed to avoid existing housing, as purchasing properties would be extremely expensive. Therefore, transmission developed under the DRECP would not combine with the expected development in these counties to result in a cumulative impact.

The projects listed in Tables IV.25-1 through IV.25-4 and renewable development permitted under Phase II of the DRECP would require limited if any displacement of people or existing housing. The projects listed in Table IV.25-1 have already been approved and were primarily located on large, open space or agriculture properties and did not require

the displacement of substantial numbers of people. Projects listed in Tables IV.25-2 through IV.25-4 are similarly large and are proposed on locations that are primarily open space or agricultural. Likewise these projects would not displace substantial numbers of people. No cumulative impact would occur.

Impact SE-3: Plan components may affect economic development and government finance.

As discussed in Section IV.23.3, renewable energy project facilitating and streamlining within Preferred Alternative DFAs may affect environmental amenities including environmental quality, stable rural community values, and cultural values. This could reduce a community's ability to attract some types of businesses. Other economic and demographic factors would play a role in the economic development potential of any particular location. Given the overall rural nature of the DFAs, it is unlikely that the renewable energy and transmission alone would be sufficient to encourage local economic growth or that established businesses would necessarily relocate because of the changes resulting from these projects. While analysis of these potential adverse impacts is speculative from a programmatic perspective, the implementation of mitigation measures would reduce potential adverse economic development impacts to regional and local governments associated with the alternatives.

Beneficial impacts would also occur from projects permitted under the DRECP. Workforce wages and spending during the construction and operation of future renewable energy and transmission projects would be an economic stimulator to regional and local governments. Other important public benefits include both short-term and long-term increases in local expenditures, payrolls, and sales tax revenues. These would positively affect the economy at state, regional, and local levels. Such economic benefits would not be limited to either the DRECP area or California, but would occur at some level to areas where renewable and transmission infrastructure project components are manufactured.

The projects listed in Tables IV.25-1 through IV.25-3 and renewable development permitted under Phase II of the DRECP would have the same potential adverse and beneficial impacts as the projects permitted under the DRECP. The adverse effects of the cumulative projects could combine with the adverse effects of projects permitted under the DRECP if there is a tipping point at which the large infrastructure projects create conflicts. However, as mentioned earlier, quantifying how the renewable projects affect future economic growth is speculative. Beneficial impacts would also occur from projects listed in Tables IV.25-1 through IV.25-3 and renewable development permitted under Phase II of the DRECP and could combine to result in a cumulatively beneficial impact.

Impact SE-4: Plan components may generate social change and social disruption.

As stated in Section IV.23.2, the nature and magnitude of the social impact of renewable energy development projects in small rural communities are still unclear. While some degree of social disruption is likely to accompany short-term construction worker in-migration (particularly if a number of renewable facilities are built simultaneously within the same localized rural area), there is insufficient evidence to predict the extent to which specific communities are likely to be affected, which population groups within each community are likely to be most affected, and the extent to which social disruption is likely to persist beyond facility construction. As discussed for Impact SE-1, in-migration of construction workers (and possibly their families) into rural communities containing and proximate to any alternative DFAs is expected. Regardless of the pace of population growth within these localized communities, the number of workers and scale of future development would create some demographic and social change.

Projects listed in Tables IV.25-1 through IV.25-4 and renewable development permitted under Phase II of the DRECP would likely have similar impacts to social change and social disruptions as the projects permitted under the DRECP. However, the construction of projects listed in Tables IV.25-1 through IV.25-4 is not expected to overlap substantially with the construction of projects permitted under the DRECP. The labor force used to construct the projects listed in Tables IV.25-1 through IV.25-3 may well be the same labor force used to construct projects permitted under the DRECP in some cases because the renewable technologies are expected to be the same. For these reasons, cumulative impacts to social change and social disruption would only be expected to occur if the disruptions persist beyond facility construction. The extent of this long-term disruption and therefore its cumulative impact is still unclear. Nonetheless, implementation of socioeconomic mitigation measures such as SE-1a and SE-1b (requires temporary housing) would reduce potential adverse social disruption impacts resulting from worker in-migration from the alternatives.

Impact SE-5: Plan components may affect property values.

Public comments on recent utility-scale renewable energy and transmission projects have included concerns that such facilities may adversely impact existing property values. As described in Section IV.23.3, to date such determinations prove speculative and several studies show that traditional electric generation facilities, transmission infrastructure, and wind turbines do not have long-term adverse effects on property values. More accurate site-specific conclusions would require knowledge of the local real estate market, historic sales trend data, and a long-term regression analysis of the local area. Due to the number of variables involved, any programmatic determination related to future renewable energy and transmission development associated with the Plan would be speculative.

The large numbers of renewable energy projects listed in Tables IV.25-1 through IV.25-4 and renewable development permitted under Phase II of the DRECP also induce public concern about the impacts of renewable energy on existing property values. As with the projects permitted under the DRECP, site-specific conclusions would require knowledge of the local real estate market, historic sales trend data, and a long-term regression analysis of the local area. Due to the number of variables involved, any cumulative programmatic determination related to future renewable energy and transmission development associated with the Plan would be speculative.

Impact SE-6: Plan effects would be disproportionately borne by minority or low-income populations.

Several individual census tracts containing minority and low-income populations within the DRECP area disproportionately bear the acreage where projects would be potentially permitted under the DRECP (see Chapter IV.23). Facilitating and streamlining renewable energy projects within Preferred Alternative DFAs could translate into a disproportionate amount of future renewable energy projects occurring within these areas. Because some of the cumulative projects listed in Tables IV.25-1 through IV.25-4 and renewable development permitted under Phase II of the DRECP would be located in the same census tracts containing minority and low-income populations, these projects would also impact census tracts with disproportionate numbers of minority and low-income populations. For example, the Imperial Valley Solar II, Midway Solar Farm, and Solar Gen 2 projects are located in an area that would be available for renewable energy development under all of the action alternatives, and this area has greater than 50% minority population. Impacts resulting from these cumulative projects would result in cumulative impacts disproportionately borne by minority populations.

Typical environmental justice mitigation measures ensure that extensive public outreach and additional study occur to mitigate any potential adverse environmental justice impacts associated with the alternatives. These measures reduce the cumulative effects.

IV.25.3.24 Department of Defense Lands and Operations

The geographic scope for cumulative impacts to DOD lands and operations is the entire DRECP area because the military operating areas and military training routes cover the majority of this area.

Cumulative impacts outside the DRECP area are not anticipated. This is because it is assumed that new Outside the DRECP area transmission lines would use existing transmission corridors between the DRECP area and existing substations in the more

heavily populated areas of the state. These corridors are known to the DOD facilities and are already incorporated into their operations and training.

Impact DD-1: Renewable energy and transmission facilities would interfere with DOD lands and operations.

As described in Chapter IV.24, projects permitted under the DRECP could impact DOD lands and operations due to glint, electronic jamming, and obstruction hazards to aircraft navigation from solar facilities. Wind energy projects can pose a physical obstruction and block radar wave transmission. The large number of solar and wind facilities listed in Tables IV.25-1 through IV.25-3 and renewable development permitted under Phase II of the DRECP would result in similar types of interference with DOD lands and operations and would result in cumulative impacts. As noted in Section IV.24.2.1, wind turbines in particular appear as “clutter” to air defense radar and this clutter will increase in direct proportions to the number of turbines within the line of sight of the air defense radar. As such, the existing and proposed wind projects in the West Mojave would result in a cumulative impact on DOD operations. Mitigation measures similar to those adopted by each individual renewable project would require coordination with the DOD and regional military installations to ensure that no special precautions are needed.

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